

FLORA OF BULANDSHAHR DISTRICT

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ABSTRACT

The paper gives an account of the vegetation of the district of Bulandshahr in Central Uttar Pradesh. Edaphic, climatic, biotic and other factors determining the floristic composition of the district have been discussed in the paper. Aquatic and cultivated plants, avenue trees and orchard plants have been mentioned. A list of 376 species has been appended to give an idea of the flora of the District. *Cuscuta capitata* Roxb. and *Clinopodium umbrosum* (M. Bieb.) Koch have been reported for the first time from the U. P. plains.

INTRODUCTION

Bulandshahr forms a part of the Meerut division of Uttar Pradesh and is situated in the Upper Doab of the Ganges and the Jamuna, between $28^{\circ}4'3''$ and $28^{\circ}0'4''$ N and between $70^{\circ}0'18''$ and $78^{\circ}0'28''$ E. The total area of the district, according to the latest information is 4984 sq. km (Statistical Abstract, U.P., 1963).

TOPOGRAPHY AND SOILS

The district is level with a gradual slope from the northwest to southwest, as indicated by the courses of the rivers and drainage. The town of Bulandshahr is close to the centre of the district and the highest point is 222 m above sea level. The district can be divided into three parts according to the lines of drainage and soils as follows:

- (1) Khadir of Jamuna, (2) Main upland plain and
- (3) Khadir of Ganges.

1. *Khadir of Jamuna*: Adjoining the Jamuna river is a stretch of lowlying country known as the *Khadir*, which forms a wide tract. With the exception of a few depressions, which contain good alluvial clay of considerable fertility, the *Khadir* is a poor land with large areas of *Tamarix* and grass along the edges and occasionally extensive growth of date palm in the middle. Further, the soil is known as "reh" in winter months, which contains salt waste. Agriculture is not profitable in these *Khadirs*.

2. *Main upland plain*: Beyond the *Khadir* of the Jamuna lies the main upland plain of the district, which extends eastwards as far as the *Khadir* of the Ganges. All along the top of the ridge runs a belt of sandy soil of varying breadth. Eastwards up to main Ganges canal, the land is generally level

and the soil is of good quality. Beyond the canal the land sinks towards the *Khadir* of the Kali Nadi. Between the Kali Nadi and the Ganges, drains the Chhoiya river, having firm loam soil. Beyond it lies a belt of inferior soil, which terminates on the east in the high bank of the Ganges.

3. *Khadir of Ganges*: The belt of the river is of coarse sand. The *Khadir* of the Ganges differs greatly from that of Jamuna in not having a wide stretch of settled country and in having a better clay deposit. Eastwards there is a reef of hard kankar and clay. The rich alluvial soil is regularly cultivated and even sugarcane is grown without artificial irrigation and is also used for garden cultivation. The rest of the cultivation is confined to melon beds and a small area of cereals. The waste land is usually covered with thick grass and *Tamarix*.

FACTORS DETERMINING THE VEGETATION OF THE DISTRICT

Dudgeon (J. Indian bot. Soc. 1: 296-324, 1920) forms the basis of the following discussion.

Climatic factors: No meteorological observations are made in this district, but records of the rainfall are kept. Therefore, the other records are the interpretation of the records from the nearest meteorological observatory at Meerut.

Rainfall: The average annual rainfall of the district is 737.2 mm. 87.8% of the annual rainfall occurs during the monsoon months i.e. June to September. The months of October and November together receive only 3% of rain, while April and May together receive 2.2% of total rainfall. The winter months of December to March together receive 7.5% of the annual rainfall. The number of

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rainy days varies from month to month. During the past 100 years the highest total fall recorded in any one year is 1144.13 mm in 1957 and the lowest is 277.7 mm in 1878. The wettest months of the district are in order July, August, September and June and driest November, April and December. Bulandshahr tahsil, by far, is the wettest portion of the district; a greater rainfall is received near the Ganges than in the neighbourhood of Jamuna.

Temperature: The temperature exhibits a large range between winter and summer and between day and night. The heat during the summer is intense and scorching, the temperature rising as high as 46.1°C. (June, 1962), during the month of June. On the contrary, the temperature in winter goes down as low as 0.2°C (December, 1961) or sometimes to below freezing point, in the month of December.

Relative humidity: The relative humidity is maximum in August; there is a slow fall in September, October and November after which it rises rapidly in December and January; then it falls slowly to a minimum in May. During the rainy season the humidity is generally high at all times; in the cold season there is a heavy fall of dew at night.

Wind: The district experiences north-west winds during the cold season, with occasional slight rain. During April, May and June, there is a strong wind, locally called "loo" from north-west; coming at a time, as it does, when the relative humidity is at the lowest point, it exerts a powerful desiccating effect on vegetation, so that practically no herbaceous vegetation is able to survive, excepting near water. There is little or no air movement at night during the hot season. During the rest of the year the velocity of the wind is normal and congenial to the growth of the vegetation.

CLIMATE AND CLIMATIC SEASONS

The climate is markedly periodic and is divided into three seasons: a rainy season, a cold season and a hot season.

The rainy season begins with the first rains about the middle of June and lasts to the end of September. It is characterised by high rainfall, low insolation, high temperature and high humidity. The rainy season passes gradually into the cold season, which may be taken to extend from October to February; it is characterised by low rainfall,

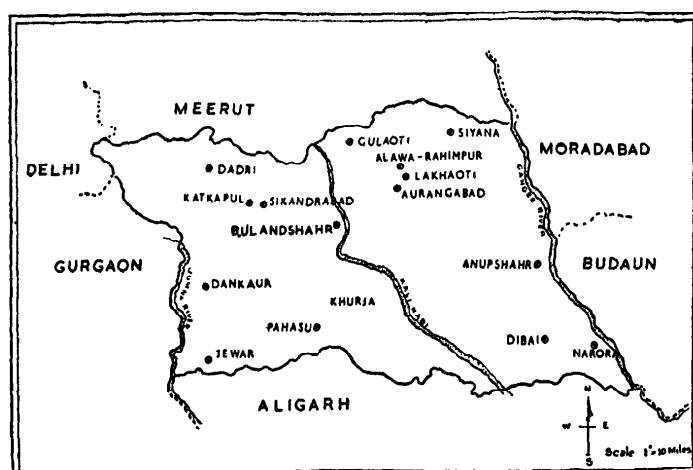
high insolation, low temperature and relatively high humidity. Next comes the hot season, which extends from March to the middle of June; it is characterised by low rainfall, high insolation, high temperature, low humidity and strong winds.

BIOTIC FACTORS

Man and his domesticated animals are the most important among these factors. According to the latest census of 1961 the population of the district is 1,737,000 in an area of 4984 sq. km or 349 persons per sq. km. Besides the human population, a large number of domestic grazing animals like cows and buffaloes, sheep and goats, horses and donkeys also influence the vegetation. The cutting down of plants for fodder and fuel is also one of the major factors affecting the vegetation.

PRESENT STUDY

The present work is based on the results of three years (1962-64) of seasonal study of plants of the Bulandshahr district. Plant collection tours were undertaken in different seasons to prepare an account of the vegetation types found in the district. Four tours for nearly 15 days each were conducted so as to cover all the seasons of the year viz. in February 1962, October 1962, April 1963 and August 1964. The present work is concentrated on the wild flora of the district but some of the cultivated plants are also collected and enumerated. The list given at the end includes 376 species. The specimens mentioned in the list are housed in the herbarium of the Botanical Survey of India, Northern



Map of Bulandshahr

Circle, Dehra Dun, under the author's name. A map of the district is given in which the areas explored are indicated.

The classification and the arrangement of families is in conformity with that of Bentham and Hooker's system of classification and that followed by Hooker f. and Duthie in their *Flora of British India* (FBI) and *Flora of Upper Gangetic Plain* respectively. Sometimes the name of the family has been adjusted according to Hutchinson. The generic and specific arrangement is in the alphabetical order only. The nomenclature of the plants has been adjusted according to the latest rules of Botanical nomenclature. Vernacular names of plants are given, wherever possible, at the end of the references within brackets. Each species is followed by a short field-note including habit, habitat, flowering and fruiting, locality of collection, collection numbers and dates of the collection numbers.

DESCRIPTION OF THE VEGETATION TYPES

The district of Bulandshahr is intensely cultivated from olden times, as in 1848 the total cultivated area amounted to 2,73,544 hectares or rather less than 57% of the whole area and in nineteen twenties it increased to 3,62,054 hectares or over 73% and today it is still more. Therefore, practically there are no natural formations. But the records (District Gazetteer 1922) show that at one time considerable tracts were covered with thick jungles of *Butea monosperma* Taub. The rapid increase of population and the consequent spread of cultivation have caused these jungles to disappear. Mango (*Mangifera indica* Linn.) tree is very common in the area. The eastern paraganas possess finer and more numerous groves of mango as compared to the western and central paraganas. The commonest and most useful tree is the babul or kikar [*Acacia nilotica* (Linn.) Del.]; it flourishes everywhere in good and bad soil and has a rapid growth. The other common timber trees are the Shisham (*Dalbergia sissoo* Roxb.), Nim (*Azadirachta indica* Juss.) and Siras (*Albizia lebbek* Benth.), all of which are well known. The other important trees are *Syzygium cumini* (Linn.) Skeels, *Ficus religiosa* Linn., *F. benghalensis* Linn., *F. glomerata* Roxb., *Morus alba* Linn., *Bauhinia variegata* Linn., *Tamarix aphylla* (Linn.) Karst., *Bombax ceiba* Linn. and *Phoenix* sp.

The permanent flora of the district is of the semi-arid type of vegetation with a considerable number of introduced and cultivated species. The typical examples of this type of vegetation represented in the area are: *Acacia nilotica* (Linn.) Del., *Butea*

monosperma Taub., *Capparis decidua* Edgew., *C. sepiaria* Linn., *C. zeylanica* Linn., *Tamarix aphylla* (Linn.) Karst., *T. dioica* Roxb., *Salvadora persica* Linn., *Zizyphus mauritiana* Lamk., *Z. oenophia* Mill., *Z. nummularia* (Burm. f.) Wt. & Arn., *Prosopis* spp., *Albizia lebbek* Benth., *Tamarindus indica* Linn., *Feronia limonia* (Linn.) Swingle and *Phoenix* spp.

The common shrubby elements found scattered throughout the area are *Adhatoda vasica* Nees, *Calotropis procera* R. Br., *Chenopodium ambrosioides* Linn., *Capparis sepiaria* Linn., *Vitex negundo* Linn., *Flacourtia indica* (Burm. f.) Merr., *Pogostemon plectranthoides* Desf., *Zizyphus nummularia* (Burm.f.) Wt. & Arn. and *Z. oenophia* Mill. etc. *Sesbania sesban* (Linn.) Merr. is found running wild near cultivated fields and is often planted for protection of the crops. *Tamarix dioica* Roxb. is found mostly along the riverain tracts near Ganges and Jamuna and is often seen along the pondsides elsewhere also. *Lantana camara* Linn. var. *indica* is restricted to the gangetic ravines mostly and is also seen frequently being grown as a hedge plant in the gardens.

The herbaceous vegetation of the area is seasonal, many of which represent the weeds of cultivation as well.

The typical rainy season herbs represented in the area are:

Abrus precatorius Linn., *Boerhavia diffusa* Linn., *Cassia tora* Linn., *Cissampelos pareira* Linn., *Catharanthus pusillus* G. Don, *Caesulia axillaris* Roxb., *Ipomoea* spp., *Oxalis corniculata* Linn., *Phyllanthus nodiflora* (Linn.) Green., *Portulaca oleracea* Linn., *Phyllanthus fraternus* Webst., *Tribulus terrestris* Linn., *Trianthema portulacastrum* Linn.

The typical winter season herbs of the area are:

Anagallis arvensis Linn., *Asphodelus tenuifolius* Cav., *Chenopodium album* Linn., *Coronopus didymus* (Linn.) Smith, *Fumaria indica* (Haussk.) Pugsley, *Lathyrus aphaca* Linn., *Melilotus alba* Desr., *Rumex dentatus* Linn., *Vaccaria pyramidata* Medik, *Vicia sativa* Linn.

During the hot season *Pluchea lanceolata* C. B. Clarke is an abundant herb in the fallow fields and waste places. Plants like *Alhagi maurorum* Desv., *Amberboa ramosa* (Roxb.) Jafri & *Carthamus oxyantha* Bieb. also thrives well in the dry places.

Amongst the aquatic flora, the following may be mentioned as the typical examples:

Azolla pinnata R. Br., *Aeschynomene indica*

Linn., *Ceratophyllum demersum* Linn., *Eichornia crassipes* (Mast.) Solms., *Eleocharis palustris* R. Br., *Hydrilla verticillata* Royle, *Ipomoea aquatica* Forsk., *Lemna paucicostata* Hegelm., *Marsilea minuta* Linn., *Spirodela polyrrhiza* Schleid.

Riverain vegetation: Some of the characteristic riverain plants may be mentioned as:

Abrus precatorius Linn., *Capparis decidua* (Forsk.) Pax., *Catharanthus pusillus* G. Don, *Corchorus depressus* (Linn.) Stocks, *Cyperus niveus* Retz., *Eclipta prostrata* (Linn.) Linn., *Evolvulus alsinoides* Linn., *Leptadenia pyrotechnica* (Forsk.) Decne., *Potentilla supina* Linn., *Polygonum stagninum* Buch.-Ham. ex Meissn., *Phoenix* sp., *Ranunculus sceleratus* Linn., *Tamarix aphylla* (Linn.) Karst., *T. dioica* Roxb., *Trianthema portulacastrum* Linn., *Tephrosia purpurea* Pers.

CULTURAL PLANT COMMUNITIES

Food crops: There are the usual harvests known as the *Kharif*, the *Rabi* and the *Zaid* harvest. The main *Kharif* crops are:

Zea mays Linn. (Maize; Indian corn), *Pennisetum typhoides* Stapf & C. E. Hubb. (Pearl or Indian bulrush millet; Bajra), *Sorghum vulgare* Pers. (Great millet; Jowar), *Oryza sativa* Linn. (Rice).

The chief *Rabi* crops are:

Triticum aestivum Linn. (Wheat), *Hordeum vulgare* Linn. (Barley) & *Cicer arietinum* Linn. (Gram).

Saccharum officinarum Linn. (Sugarcane) is planted from January to April and is cut during the following cold season:

The *Zaid* harvest mainly consists of tobacco and miscellaneous non-food crops, the remainder being taken up by melons, vegetables and spices.

Garden crops (Duration: September-February).

Daucus carota Linn. (Carrot; Gajar), *Raphanus sativus* Linn. (Radish; Muli), *Brassica oleracea* Linn. var. *capitata* Linn. (Cabbage; Bundghobi), *B. oleracea* Linn. var. *caulorapa* DC. (Knol-kohl; Ganthgobhi); *B. rapa* Linn. (Turnip; Shaljam), *Allium cepa* Linn. (Onion; Pyaz), *Colocasia esculenta* (Linn.) Schott (Arvi or Ghuiyan), *Lycopersicon esculentum* Mill (Tomato; Tamatar).

In the summer months of April, May and June many cucurbitaceous plants are grown along the banks of Ganga and Jamuna e.g.:

Lagenaria vulgaris Ser. (Bottlegourd, lauki), *Luffa cylindrica* Roem. (Ghia; tori), *Cucumis melo* Linn. (Melon; Kharbooz), *C. melo* Linn. var. *utilissimus*

Duthie & Fuller (Cucumber; Kakri), *Citrullus vulgaris* Schrad. (Water melon; Tarbooz) & *Cucurbita moschata* Duch. (Pumpkin; Kasiphal or Kaddoo).

Fruit plantations: A number of orchards are met within the district with their main constituents as follows:

Mangifera indica Linn. (Mango), *Psidium guajava* (Guava; Amrood), *Prunus persica* Stocks (Peach), *P. domestica* subsp. *insititia* Schneid (Alu bukhara), *Citrus aurantium* Linn. (Sour or Sevilla orange), *C. aurantifolia* (Christ.) Swingle (Lemon, Nimbu) & *Carica papaya* Linn. (Papita).

Under drinks and narcotics only tobacco (tambaku; *Nicotiana rustica* Linn. & *N. tabacum* Linn.) is cultivated as a main crop.

ENUMERATION

N.B. As all the collections have been made by the author himself, the collector's name should always be taken as *N. P. Singh* and hence it shall not appear in the list hereafter.

RANUNCULACEAE

Ranunculus sceleratus Linn. Sp. Pl. 551, 1753; Hook. f. & T. in FBI 1: 19, 1872.

In sandy soil in the river bed. Flowering and fruiting. Bulandshahr and Anupshahr. 19482, 27403 (20-2-1962 & 22-4-1963).

ANNONACEAE

Annona squamosa Linn. Sp. Pl. 537, 1753; Hook. f. & T. in FBI 1: 78, 1872 (Sharifa).

An orchard tree. Flowering and fruiting. Anupshahr. 31391 (19-8-1964).

MENISPERMACEAE

Cissampelos pareira Linn. Sp. Pl. 1031, 1753; Hook. f. & T. in FBI 1: 103, 1872.

In waste places. Flowering and fruiting. Siyana & Aurangabad. 25368 & 31995 (21-10-1962 & 27-8-1964).

Cocculus hirsutus (Linn.) Diels in Engl. Pfreich. 46: 236, 1910.

In waste lands. Flowering and fruiting. Daulatabad & Alawa-Rahimpur. 19606 & 27426 (22-2-1962 & 25-4-1963).

C. pendulus (Forst.) Diels in Engl. Pfreich. 46: 237, 1910.

In waste lands. Fruiting. Anupshahr. 25596 (22-4-1963).

NYMPHAEACEAE

Nymphaea nouchali Burm. f. Fl. Ind. 120. 1768 (Kamal).

In road side ditches. Flowering. Kot ka pul. 31965 (22-8-1964).

PAPAVERACEAE

Argemone mexicana Linn. Sp. Pl. 508, 1753; Hook. f. & T. in FBI 1: 117, 1872 (Satyanashi).

In waste places. Flowering and fruiting. Aurangabad, Bulandshahr and Dibai. 19454, 25525 & 31968 (19-2-1962, 18-4-1963 & 24-8-1964).

Papaver somniferum Linn. Sp. Pl. 508, 1753; Hook. f. & T. in FBI 1: 117, 1872 (Post).

In onion fields. Flowering and fruiting. Khurja. 25554 (20-4-1963).

FUMARIACEAE

Fumaria vaillantii Loisel in Desv. J. Bot. 2: 358, 1809.

In cultivated fields. Flowering. Lakhaoti. 19613 (23-2-1962).

CRUCIFERAE

Coronopus didymus (Linn.) Smith, Fl. Brit. 2: 691, 1800.

In moist places. Flowering and fruiting. Lakhaoti & Gulaoiti. 19403 & 27407 (18-2-1962 & 23-4-1963).

Lepidium sativum Linn. Sp. Pl. 644, 1753; Hook. f. & T. Anders. in FBI 1: 159, 1872.

In cultivated fields. Flowering and fruiting. Siyana. 19492 (21-2-1962).

Raphanus sativus Linn. Sp. Pl. 669, 1753; Hook. f. & T. Anders. in FBI 1: 166, 1872 (Muli).

In cucumber fields. Flowering. Khurja. 25570 (20-4-1963).

Sisymbrium orientale Linn. Cent. Pl. II: 24, 1756.

In waste places. Flowering and fruiting. Bulandshahr. 19465 & 19470 (20-2-1962).

CAPPARACEAE

Capparis decidua (Forsk.) Edgew. in Jour. Linn. Soc. Bot. 6: 184, 1862.

In waste places and Jamuna ravines. Flowering and fruiting. Dankaur & Jewar. 25583 & 31942 (21-4-1963 & 21-8-1964).

C. sepiaria Linn. Syst. 1071, 1759; Hook. f. & T. in FBI 1: 177, 1872.

In waste places and canal sides. Flowering and fruiting. Bulandshahr and Pahasu. 25514 & 31935 (18-4-1963 & 20-8-1964).

C. zeylanica Linn. Sp. Pl. (ed. 2) 720, 1762; (non Hook. f. & T. in FBI 1: 174, 1872).

In gangetic ravines. Flowering. Anupshahr. 25595 (22-4-1963).

Cleome gynandra Linn. Sp. Pl. 671, 1753 (Hulhul).

In waste places and cultivated fields. Flowering and fruiting. Aurangabad, Lakhaoti-Aurangabad

Road and Jewar. 19448, 25338 & 31936 (19-2-1962, 20-10-1962 & 21-8-1964).

C. viscosa Linn. Sp. Pl. 672, 1753; Hook. f. & T. in FBI 1: 170, 1872.

In cultivated fields. Flowering and fruiting. Narora. 31980 (25-8-1964).

Cretaeve nurvala Buch.-Ham. in Trans. Linn. Soc. Bot. 15: 121, 1827.

In orchards. Flowering and fruiting. Khurja and Anupshahr. 25569, 25590 & 31378 (20-4-1963, 22-4-1963 & 19-8-1964).

RESEDACEAE

Oligomeris linifolia (Vahl) Macbride in Contr. Gray Herb. (n.s.) 53: 13, 1918.

In waste places. Flowering. Lakhaoti. 19414 (18-2-1962).

VIOLACEAE

Hybanthus enneaspermus (Linn.) F. V. Muell Fragm. 10: 81, 1877.

With *Leptadenia pyrotechnica* in gangetic ravines. Flowering. Narora. 31978 (25-8-1964).

BIXACEAE

Flacourtia indica (Burm.f.) Merr. Interpret. Herb. Amb. 377, 1917 & Enum. 3: 112.

In waste lands. Fruiting. Daulatabad. 27456 (28-4-1963).

POLYGALACEAE

Polygala chinensis Linn. Sp. Pl. 704, 1753; Bennett in FBI 1: 204, 1872.

In gangetic ravines. Flowering. Anupshahr. 31904 (21-8-1964).

CARYOPHYLLACEAE

Areñaria serpyllifolia Linn. Sp. Pl. 423, 1753; Edgew. & Hook. f. in FBI 1: 239, 1874.

In sugarcane fields. Flowering. Dadri. 25550 (19-4-1963).

Polycarpaea corymbosa (Linn.) Lamk. Tabl. Encyl. 2: 129, 1791; Edgew. & Hook. f. in FBI 1: 245, 1874.

In *Cajanus cajan* fields. Flowering. Lakhaoti 25379 (22-10-1962).

Polycarpon prostratum (Forsk.) Pax in Engl. & Prantl, Nat. Pfam. 3(lb): 87, 1889.

Along the pondsides. Fruiting. Aurangabad. 33508 (27-8-1964).

Silene conoidea Linn. Sp. Pl. 418, 1753; Edgew. & Hook. f. in FBI 1: 218, 1874.

In cultivated fields. Flowering and fruiting. Alawa-Rahimpur and Dadri. 19439 & 25544 (18-2-1962 & 19-4-1963).

Spergula pentandra Linn. Sp. Pl. 440, 1753; Edgew. & Hook. f. in FBI 1: 243, 1874.

In cultivated fields. Flowering and fruiting. Lakhaoti, Dadri & Khurja. 19405, 25521 & 25558 (18-2-1962, 19-4-1963 & 20-4-1963).

Spergularia rubra (Linn.) J. & C. Presl. Fl. Cech. 94, 1819.

In cultivated fields and waste lands. Flowering. Lakhaoti. 19415 (18-2-1962).

Stellaria media (Linn.) Vill. Hist. Pl. Dauph. 3: 615, 1789.

In moist and shady places. Flowering. Alawa-Rahimpur. 19426 (18-2-1962).

Vaccaria pyramidata (Linn.) Medik. Phil. Bot. 1: 96, 1789.

In cultivated fields and especially in wheat fields. Flowering. Lakhaoti. Aurangabad and Dadri. 19413, 19450 & 25542 (18-2-1962, 19-2-1962 & 19-4-1963).

PORTULACACEAE

Portulaca oleracea Linn. Sp. Pl. 445, 1753; Dyer in FBI 1: 246, 1874.

In waste places and cultivated fields. Flowering and fruiting. Bulandshahr & Khurja. 25327 & 25555 (19-10-1962 & 20-4-1963).

P. quadrifida Linn. Mant. 1: 73, 1767; Dyer in FBI 1: 247, 1874.

In waste places and cultivated fields. Flowering. Bulandshahr, Khurja & Dibai. 25326, 25556 & 31969 (19-10-1962, 20-4-1963 & 24-8-1964).

TAMARICACEAE

Tamarix aphylla (Linn.) Lanza in Boll. Orto Bot. Palermo 8: 82, 1909. (Pharas).

Along the field and roadsides. Flowering. Jewar. 31941 (21-8-1964).

T. dioica Roxb. Fl. Ind. 2: 101, 1828; Dyer in FBI 1: 249, 1874.

Along the pondsides. Flowering. Bulandshahr. 25322 (19-10-1962).

ELATINACEAE

Bergia ammannioides Roxb. Fl. Ind. 2: 457, 1828; Dyer in FBI 1: 251, 1874.

In marshy places. Flowering. Daulatabad. 19604 (22-2-1962).

MALVACEAE

Abutilon indicum (Linn.) Sweet Hort. Brit. 54, 1827; Mast. in FBI 1: 326, 1874 (pili Buti).

In waste places. Flowering and fruiting. Alawa-Rahimpur, Lakhaoti-Aurangabad Road, Siyana and Aurangabad. 19430, 25339, 27448 & 33502 (18-2-1962, 20-10-1962, 27-4-1963 & 27-8-1964).

Althaea ludwigii Linn. Mant. 98, 1771; Mast. in FBI 1: 319, 1874.

In marshy places. Fruiting. Lakhaoti. 27420 (24-4-1963).

Gossypium arboreum Linn. Sp. Pl. 693, 1753; Mast. in FBI 1: 347, 1874 (Kapas).

Cultivated. Flowering. Pahasu. 31925 & 31926 (20-8-1964).

Malva rotundifolia Linn. Sp. Pl. 688, 1753; Mast. in FBI 1: 320, 1874.

In waste places. Flowering. Lakhaoti. 19416 (18-2-1962).

M. sylvestris Linn. Sp. Pl. 689, 1753; Mast. in FBI 1: 320, 1874.

In cultivated beds near temples etc. Flowering and fruiting. Dankaur. 25587 (21-4-1963).

M. verticillata Linn. Sp. Pl. 689, 1753; Mast. in FBI 1: 320, 1874.

In cultivated fields. Flowering and fruiting. Siyana. 27451 (27-4-1963).

Malvastrum coromandelianum (Linn.) Garcke in Bonplandia 5: 297, 1857.

As an undergrowth of the orchards. Flowering and fruiting. Pahasu. 31917 (20-8-1964).

Sida cordifolia Linn. Sp. Pl. 684, 1753; Mast. in FBI 1: 324, 1874.

In waste places and cultivated fields. Flowering and fruiting. Bulandshahr & Lakhaoti. 19466 & 25378 (20-2-1962 & 22-10-1962).

S. grewoides Guill. & Perr. Fl. Seneg. Tent. 1: 71, 1831; Mast. in FBI 1: 323, 1874.

In waste places. Flowering. Gulaoti. 27408 (23-4-1963).

S. veronicaefolia Lamk. Encycl. 1: 5, 1783.

In roadside ditches. Flowering. Siyana & Gang-nahar (Bulandshahr). 27439 & 31362 (27-4-1963 & 18-8-1964).

Urena lobata Linn. Sp. Pl. 692, 1753; Mast. in FBI 1: 329, 1874.

As an undergrowth of the orchards. Flowering and fruiting. Siyana, Alawa-Rahimpur and Pahasu. 25359, 27429 & 31923 (21-10-1962, 25-4-1963 & 20-8-1964).

STERCULIACEAE

Melochia corchorifolia Linn. Sp. Pl. 675, 1753; Mast. in FBI 1: 374, 1874.

In marshy clay. Flowering and fruiting. Lakhaoti. 27405 (23-10-1962).

TILIACEAE

Corchorus capsularis Linn. Sp. Pl. 529, 1753; Mast. in FBI 1: 397, 1874.

In moist places. Flowering and fruiting. Siyana. 25366 (21-10-1962).

Corchorus depressus (Linn.) Stocks in Proc. Linn. Soc. 1: 367, 1848.

In gangetic ravines. Flowering. Narora. 31983 (25-8-1964).

C. olitorius Linn. Sp. Pl. 529, 1753; Mast. in FBI 1: 397, 1874.

In waste places. Flowering. Anupshahr and Dibai. 31389 & 31967 (19-8-1964 & 24-8-1964).

C. tridens Linn. Mant. 566, 1771; Mast. in FBI 1: 398, 1874.

In waste places. Fruiting. Lakhaoti-Aurangabad Road. 25335 (20-10-1962).

Grewia elastica Royle Ill. 104, t. 22, 1833.

In orchards. Flowering. Anupshahr. 25597 (22-4-1963).

Triumfetta rhomboidea Jacq. Enum. Pl. Carib. 22, 1760; Mast. in FBI 1: 395, 1874.

In waste places. Flowering and fruiting. Siyana and Pahasu. 25364 & 31914 (21-10-1962 & 20-8-1964).

LINACEAE

Linum usitatissimum Linn. Sp. Pl. 277, 1753; Hook. f. in FBI 1: 410, 1874 (Alsi).

Cultivated and also found as an escape. Flowering and fruiting. Lakhaoti and Dadri. 19418 & 25541 (19-2-1962 & 19-4-1963).

ZYGOPHYLLACEAE

Tribulus terrestris Linn. Sp. Pl. 387, 1753; Edgew. & Hook. f. in FBI 1: 423, 1874 (Gokhru).

In cultivated fields and fallow lands. Flowering and fruiting. Bulandshahr, Lakhaoti and Bulandshahr-Delhi Road. 25301, 27462 & 31340 (19-10-1962, 29-4-1963 & 18-8-1964).

GERANIACEAE

Averrhoa carambola Linn. Sp. Pl. 428, 1753; Edgew. & Hook. f. in FBI 1: 439, 1874 (Kamrakh).

In orchards. Flowering. Aurangabad. 31996 (27-8-1964).

Oxalis corniculata Linn. Sp. Pl. 435, 1753; Edgew. & Hook. f. in FBI 1: 436, 1874.

In waste places and orchard undergrowths. Flowering and fruiting. Alawa-Rahimpur, Bulandshahr, Gulaoti and Pahasu. 19427, 19469, 27410 & 31916 (18-2-1962, 20-2-1962, 23-4-1963 & 20-8-1964).

RUTACEAE

Aegle marmelos (Linn.) Correa in Trans. Linn. Soc. Bot. 5: 223, 1800; Hook. f. in FBI 1: 516, 1875 (Bel).

In gardens. Fruiting. Anupshahr. 31390 (19-8-1964).

Murraya paniculata (Linn.) Jack. in Mal. Misc. 1(5): 31, 1820.

Along the roadsides. Flowering. Anupshahr. 31380 (19-8-1964).

MELIACEAE

Azadirachta indica A. Juss. in Mem. Musc. Par. 19: 221, 1830 (Neem).

Along the roadsides. Flowering. Khurja. 25563 (20-4-1963).

Melia azedarach Linn. Sp. Pl. 384, 1753; Hiern in FBI 1: 544, 1875 (Bakan).

Planted. Fruiting. Lakhaoti and Khurja. 25419 & 25559 (24-10-1962 & 20-4-1963).

RHAMNACEAE

Zizyphus mauritiana Lamk. Encycl. 3: 319, 1789 (Ber).

Both cultivated and wild. Flowering. Lakhaoti-Aurangabad Road. 25336 (20-10-1962).

Z. nummularia (Burm. f.) Wt. & Arn. Prodr. 162, 1834; Lawson in FBI 1: 633, 1875 (Jharberi).

Along the canal sides. Flowering and fruiting. Gangnahar (Bulandshahr). 31365 (18-8-1964).

Z. oenoplia Mill. Gard. Dict. n. 3, 1768; Lawson in FBI 1: 634, 1875 (Ber).

Along the canal sides. Flowering. Gangnahar (Bulandshahr). 31367 (18-8-1964).

VITACEAE

Cayratia carnosia Gagnep. in Not. Syst. 1: 347, 1911.

Along the canal sides. Flowering and fruiting. Gangnahar (Bulandshahr). 31369 (18-8-1964).

PAPILIONACEAE

Abrus precatorius Linn. Syst. 472, 1767; Baker in FBI 2: 175, 1876 (Ratti or Chontni).

Along the canal sides and in gangetic ravines. Flowering and fruiting. Anupshahr and Gangnahar (Bulandshahr). 25598 & 31370 (22-4-1963 & 18-8-1964).

Aeschynomene indica Linn. Sp. Pl. 713, 1753; Baker in FBI 2: 151, 1876.

Along the pondsides. Flowering and fruiting. Aurangabad. 25349 & 33503 (20-10-1962 & 27-8-1964).

Alhagi pseudalhagi (Bieb.) Desv. Jour. de Bot. 1: 120, 1813 (Jawasa).

In waste places. Flowering and fruiting. Gulaoti. 27419 (23-4-1963).

Alysicarpus bupleurifolius DC. Prodr. 2: 352, 1825; Baker in FBI 2: 158, 1876.

Along the pondsides. Flowering. Cattles do not eat it. Aurangabad. 33504 (27-8-1964).

A. monilifer DC. Prodr. 2: 353, 1825; Baker in FBI 2: 157, 1876.

Along the pondsides and in waste places. Flowering and fruiting. Aurangabad. 25354 & 33509 (20-10-1962 & 27-8-1964).

A. vaginalis DC. Prodr. 2: 353, 1825; Baker in FBI 2: 158, 1876.

Along the pondsides. Flowering. Lakhaoti. 33532 (29-8-1964).

Butea monosperma (Lamk.) Taubert in Engl. & Prantl, Nat. Pfam, 3(3): 366, 1894 (Dhak or Tesu).

Forming few clumps, vestige of a one time forest. Flowering. Daulatabad. 27459 (28-4-1963).

Cajanus cajan (Linn.) Millsp. in Field columb. Mus Bot. 2: 53, 1900 (Arhar).

Cultivated. Flowering. Alawa-Rahimpur. 19438 (18-2-1962).

Clitoria ternatea Linn. Sp. Pl. 753, 1753; Baker in FBI 2: 208, 1876.

In gangetic ravines. Flowering and fruiting. Anupshahr. 25593 & 31386 (22-4-1963 & 19-8-1964).

Crotalaria juncea Linn. Sp. Pl. 714, 1753; Baker in FBI 2: 79, 1876.

In onion fields. Flowering. Khurja. 25557 (20-4-1963).

C. medicaginea Lamk. var. *luxurians* Baker in FBI 2: 81, 1876 (Jhojru).

Cultivated for fodder and also found growing wild. Flowering and fruiting. Bulandshahr and Bulandshahr-Delhi Road. 25308 & 31338 (19-10-1962 & 18-8-1964).

Dalbergia sissoo Roxb. Fl. Ind. 3: 223, 1832; Baker in FBI 2: 231, 1876 (Shisham).

Along the roadsides. Fruiting. Bulandshahr and Anupshahr. 25512 & 31382 (18-4-1963 & 19-8-1964).

Desmodium gangeticum (Linn.) DC. Prodr. 2: 327, 1825; Baker in FBI 2: 168, 1876.

Along the sides of the *Adhatoda-Butea* associations. Flowering and fruiting. Lakhaoti. 33526 (29-8-1964).

D. gangeticum (Linn.) DC. var. *maculatum* (Linn.) Baker in FBI 2: 168, 1876.

In waste places. Flowering and fruiting. Gulaoti. 27417 (23-4-1963).

D. triflorum (Linn.) DC. Prodr. 2: 334, 1825; Baker in FBI 2: 173, 1876.

In waste places and canal sides. Flowering and fruiting. Aurangabad and Dadri. 25342 & 25553 (20-10-1962 & 19-4-1963).

Indigofera linnaei Ali. Bot. Not. Ill. 549, 1958.

In gangetic ravines. Flowering. Anupshahr. 31396 (19-8-1964).

I. linifolia (Linn. f.) Retz. Obs. 4: 29, 1786; Baker in FBI 2: 99, 1876.

Amongst grasses. Flowering and fruiting. Aurangabad and Dankaur. 25351 & 25581 (20-10-1962 & 21-4-1963).

I. tinctoria Linn. Sp. Pl. 751, 1753, in part; Baker in FBI 2: 99, 1876.

In gangetic ravines and canal sides. Flowering and fruiting. Lakhaoti and Anupshahr. 25418 & 31903 (24-10-1962 & 19-8-1964).

Lathyrus aphaca Linn. Sp. Pl. 729, 1753; Baker in FBI 2: 179, 1876 (Jangli Matar).

In cultivated fields. Flowering. Lakhaoti. 19417 (18-2-1962).

L. sativus Linn. Sp. Pl. 730, 1753; Baker in FBI 2: 179, 1876 (Kassa Matar).

In cultivated fields and waste lands. Flowering. Siyana and Lakhaoti. 19488 & 25400 (21-2-1962 & 23-10-1962).

Lens culinaris Medik. in Vorles. Churpf. Phys. Ges. 2: 361, 1787 (Masur).

Cultivated and also as an escape. Flowering. Alawa-Rahimpur. 19437 (18-2-1962).

Medicago sativa Linn. Sp. Pl. 778, 1753; Baker in FBI 2: 90, 1876 (Rijka).

Cultivated. Flowering. Aurangabad and Pahasu. 27436 & 31927 (26-4-1963 & 20-8-1964).

Melilotus alba Desr. in Lamk. Encycl. 4: 63, 1797; Baker in FBI 2: 89, 1876.

In sugarcane fields. Flowering. Bulandshahr. 25530 (19-4-1963).

M. indica All. Fl. Pedem. 1: 308, 1785 (Morilla).

In cultivated fields and moist places. Flowering and fruiting. Alawa-Rahimpur and Dadri. 19424 & 25545 (18-2-1962 & 19-4-1963).

Phaseolus aureus Roxb. Fl. Ind. 3: 557, 1832.

As an escape from cultivation in cultivated fields and waste places. Flowering and fruiting. Bulandshahr-Delhi Road. 31341 (18-8-1964).

Pisum sativum Linn. Sp. Pl. 727, 1753; Baker in FBI 2: 181, 1876 (Matar).

Cultivated. Flowering and fruiting. Lakhaoti. 19408 (18-2-1962).

Rhynchosia minima (Linn.) DC. Prodr. 2: 385, 1825; Baker in FBI 2: 223, 1876.

Along the bushes. Flowering and fruiting. Dankaur and Lakhaoti, 25582 & 33527 (21-4-1963 & 29-8-1964).

Sesbania sesban (Linn.) Merr. in Philip. Jour. Sci. (Bot.) 7: 235, 1912 (Ramasan).

Planted. Flowering and fruiting. Lakhaoti and Khurja, 19623 & 25560 (23-2-1962 & 20-4-1963).

Tephrosia purpurea (Linn.) Pers. Syn. 2: 329, 1807; Baker in FBI 2: 112, 1876.

In gangetic ravines. Flowering and fruiting. Anupshahr, 25600 & 31901 (22-4-1963 & 19-8-1964).

Trigonella foenum-graecum Linn. Sp. Pl. 777, 1753; Baker in FBI 2: 87, 1876.

In sugarcane fields. Flowering and fruiting. Dadri, 25548 (19-4-1963).

T. polycerata Linn. Sp. Pl. 777, 1753; Baker in FBI 2: 87, 1876.

In cultivated fields. Flowering and fruiting. Lakhaoti and Dadri, 19412 & 25547 (18-2-1962 & 19-4-1963).

Vicia hirsuta (Linn.) S. F. Gray in Nat. Arr. Brit. Pl. 2: 614, 1821; Baker in FBI 2: 177, 1876.

In cultivated fields. Flowering. Lakhaoti, 19410 (18-2-1962).

V. sativa Linn. Sp. Pl. 736, 1753; Baker in FBI 2: 178, 1876.

In cultivated fields and waste places. Flowering and fruiting. Lakhaoti, 17409 (18-2-1962).

Zornia diphylla (Linn.) Pers. Syn. 2: 318, 1807; Baker in FBI 2: 147, 1876.

Along the pondsides. Flowering and fruiting. Aurangabad, 33507 (27-8-1964).

CAESALPINIACEAE

Caesalpinia crista Linn. Sp. Pl. 380, 1753.

Along the roadsides. Flowering. Anupshahr, 31379 (19-8-1964).

Cassia obtusifolia Linn. Sp. Pl. 377, 1753 (Panwarh).

In waste places and gangetic ravines. Flowering and fruiting. Lakhaoti-Aurangabad Road and Narora, 25329 & 31976 (20-10-1962 & 25-8-1964).

C. occidentalis Linn. Sp. Pl. 377, 1753; Baker in FBI 2: 262, 1878.

In waste places. Flowering and fruiting. Bulandshahr, Aurangabad and Anupshahr, 25302, 27433 & 31384 (19-10-1962, 26-4-1963 & 19-8-1964).

C. tora Linn. Sp. Pl. 376, 1753; Baker in FBI 2: 263, 1878 in part. (Panwarh).

In waste places and cultivated fields. Flowering and fruiting. Siyana and Aurangabad, 27444 & 31994 (27-4-1963 & 27-8-1964).

Delonix regia (Boj.) Raf. Fl. Tell. 2: 92, 1836 (Gold Mohr).

An avenue and garden tree. Flowering. Lakhaoti, 27467 (29-4-1963).

Parkinsonia aculeata Linn. Sp. Pl. 375, 1753; Baker in FBI 2: 260, 1878 (Vilayati Kikar).

Planted. Flowering and fruiting. Lakhaoti, 19622 & 27464 (23-2-1962 & 29-4-1963).

MIMOSACEAE

Acacia nilotica (Linn.) Del. subsp. **tomentosa** Benth., Brenan in Kew Bull. 12: 84, 1957 (Kikar or Babul).

Planted and also wild. Flowering and fruiting. Bulandshahr, Dankaur and Lakhaoti, 25310, 25579 & 33525 (19-10-1962, 21-4-1963 & 29-8-1964).

Albizia lebbek (Linn.) Benth. in Hook. Lond. Jour. Bot. 3: 87, 1844; Baker in FBI 2: 298, 1878.

Planted. Flowering and fruiting. Dadri and Jewar, 25552 & 31948 (19-4-1963 & 21-8-1964).

Entada juliflora (DC.) Roberty in Bull. Inst. Franc. Afr. Noire, ser. A. XVI 346, 1954.

Planted as well as wild. Flowering and fruiting. Bulandshahr, 25516 (18-4-1963).

Leucaena leucocephala (Lamk.) Wit. in Taxon 10: 53, 1961.

Planted. Flowering and fruiting. Bulandshahr, 25314 (19-10-1962).

Mimosa rubicaulis Lamk. Encycl. 1: 20, 1783; Baker in FBI 2: 291, 1878.

Along the canal sides. Flowering. Siyana 31310 (28-8-1964).

Prosopis spicigera Linn. Mant. 68, 1767; Baker in FBI 2: 288, 1878 (Chonkra).

Along the road and canal sides. Used as a soil binder. Flowering and fruiting. Kot ka pul, 31956 (22-8-1964).

ROSACEAE

Eriobotrya japonica (Thunb.) Lindl. in Trans. Linn Soc. Bot. 13: 102, 1822; Hook. f. in FBI 2: 372, 1878 (Loquat).

In orchards. Flowering. Siyana, 33518 (28-8-1964).

Potentilla supina Linn. Sp. Pl. 497, 1753; Hook. f. in FBI 2: 359, 1878.

In moist places. Flowering. Aurangabad and Dankaur, 19457 & 25577 (19-2-1962 & 21-4-1963).

COMBRETACEAE

- Quiscalis indica** Linn. Sp. Pl. 556, 1753; Clarke in FBI 2: 459, 1878.
In gardens. Flowering. Lakhaoti. 33555 (1-11-1964).

MYRTACEAE

- Syzygium cuminii** (Linn.) Skeels in US Dept. Agric. Bur. Pl. Ind. Bull. No. 248, 2, 1912.
Planted. Flowering. Anupshahr. 31591 (22-4-1963).

LYTHRACEAE

- Ammannia baccifera** Linn. Sp. Pl. 120, 1753; Clarke in FBI 2: 569, 1879.
Near water. Flowering. Sahanpur (Siyana) and Bulandshahr. 19495 & 25323 (21-2-1962 & 19-10-1962).
A. senegalensis Lamk. Tabl. Encycl. 1: 312, n. 155, t. 77, f. 2, 1791; Clarke in FBI 2: 570, 1879.
In paddy fields. Flowering. Lakhaoti. 25408 (23-10-1962).

ONAGRACEAE

- Ludwigia adscendens** (Linn.) Hara J. Jap. Bot. 28: 290, 1953.
In ponds and puddles. Flowering. Shahanpur river (Siyana) and Kot ka pul. 25377 & 31959 (21-10-1962 & 22-8-1964).
L. perennis Linn. Sp. Pl. 119, 1753.
In moist places. Flowering and fruiting. Lakhaoti. 33521 (29-8-1964).

TRAPACEAE

- Trapa natans** Linn. var. **bispinosa** (Roxb.) Makino in Inuma Somuku-Dzusetzii (ed. 3) 1: 137, 1907 (Singhada).
Cultivated in the ponds and puddles. Fruiting. Aurangabad. 19482 (19-2-1962).

CUCURBITACEAE

- Colocynthis citrullus** (Linn.) O. Kuntze in Rev. Gen. 1: 256, 1891 (Tarbooz).
Along the sides of the cultivated fields. Flowering. Dibai. 31966 (24-8-1964).
Coccinia cordifolia (Linn.) Cogn. in DC. Mon. Phan. 3: 529, 1881 (Pam Kacharia).
In waste places. Flowering and fruiting. Fruit said to be eaten by men and snakes. Aurangabad and Gangnagar (Bulandshahr). 27434 & 31363 (26-4-1963 & 18-8-1964).
Cucumis melo Linn. Sp. Pl. 1011, 1753; Clarke in FBI 2: 620, 1879 (Kacharia).
In the roadside ditches. Flowering. Bulandshahr-Delhi Road. 31351 (18-8-1964).

- C. callosus** (Rottl.) Cong. in Engler Das Pflanzenr. IV. 275, 2: 129, 1924.

In Arhar fields. Flowering. Lakhaoti. 25380 (22-10-1962).

- Momordica charantia** Linn. Sp. Pl. 1009, 1753; Clarke in FBI 2: 616, 1879 (Jangli Karela).

In roadside ditches and other waste places. Flowering. Aurangabad & Delhi Road (Bulandshahr). 25355 & 31345 (20-10-1962 & 18-8-1964).

- Mukia maderaspatana** (Linn.) WM. Roem. Syn. Pepon 47: 1846.

In cultivated fields and waste places. Flowering and fruiting. Lakhaoti-Aurangabad Road & Jewar. 25532 & 31946 (20-10-1962 & 21-8-1964).

- Trichosanthes cucumerina** Linn. Sp. Pl. 1008, 1753; Clarke in FBI 2: 609, 1879.

In orchard undergrowth. Flowering. Siyana & Gangnagar (Bulandshahr). 25371 & 31366 (21-10-1962 & 18-8-1964).

FICOIDEAE

- Glinus lotoides** Linn. Sp. Pl. 463, 1753.

In waste places and dry marshes. Fruiting. Dadri and Lakhaoti. 25534 & 27422 (19-4-1963 & 24-4-1963).

- Mollugo pentaphylla** Linn. Sp. Pl. 89, 1753.

In cultivated fields. Flowering. Anupshahr. 31910 (19-8-1964).

- Trianthema decandra** Linn. Mant. 70, 1767; Clarke in FBI 2: 661, 1879.

In waste places. Flowering and fruiting. Gulaoti and Aurangabad. 27409 & 31999 (23-4-1963 & 27-8-1964).

- T. portulacastrum** Linn. Sp. Pl. 223, 1753.

In cultivated fields and waste places. Flowering. Bulandshahr and Jewar. 25325 & 31952 (19-10-1962 & 21-8-1964).

- T. triquetra** Rottl. ex Willd. Neue Schr. Naturf. Berlin, 181, 1803.

In waste places. Flowering and fruiting. Lakhaoti. 25399 (23-10-1962).

UMBELLIFERAE

- Anethum graveolens** Linn. Sp. Pl. 263, 1753.

At times cultivated. Flowering. Aurangabad and Khurja. 19449 & 25571 (19-2-1962 & 20-4-1963).

- Carum copticum** Benth. & Hook. f. Gen. Pl. 1: 891, 1862; Clarke in FBI 2: 682, 1879 (Ajwain).

In Rijka fields. Flowering. Lakhaoti. 27460 (29-4-1963).

Centella asiatica (Linn.) Urban in Mart Fl. Bras. 11: 287, 1879. (Brahmi Buti).

Near moist places. Flowering and fruiting. Bulandshahr and Pahasu. 25520 & 31928 (18-4-1963 & 20-8-1964).

Oenanthe javanica (Bl.) DC. Prodr. 4: 138, 1830.

On canal banks. Flowering. Bulandshahr. 25508 (18-4-1963).

RUBIACEAE

Borreria articularis (Linn. f.) F. N. Wils. in Bull. Herb. Boiss. 2 ser. 5: 956, 1905.

In gangetic ravines. Flowering. Anupshahr. 31398 (19-8-1964).

B. stricta (Linn. f.) Schum. in Engl. & Prantl, Nat. Pfam. 4(4): 143, 1891.

In gangetic ravines. Flowering. Narora. 31979 (25-8-1964).

Oldenlandia corymbosa Linn. Sp. Pl. 119, 1753; Hook. f. in FBI 3: 64, 1880.

In cultivated fields. Flowering and fruiting. Lakhaoti. 25417 (24-10-1962).

COMPOSITAE

Ageratum conyzoides Linn. Sp. Pl. 839, 1753; Hook. f. in FBI 3: 243, 1881.

In cultivated fields and waste places. Flowering and fruiting. Siyana, Bulandshahr and Aurangabad. 19487, 25529 & 31997 (21-2-1962, 18-4-1963 & 27-8-1964).

Amberboa ramosa (Roxb.) Jafri in Scientist 3: 29, 1959.

In fallow lands and waste places. Flowering. Aurangabad and Alawa-Rahimpur. 19455 & 27427 (19-2-1962 & 25-4-1963).

Bidens biternata (Lour.) Merr. & Sherff. in Bot. Gaz. 88: 293, 1929.

Along the canal sides. Flowering. Siyana. 33513 (28-8-1964).

Blainvillea latifolia (Linn. f.) DC. in Wt. Contrib. 17, 1834.

In cotton fields. Flowering and fruiting. Narora. 31992 (25-8-1964).

Blumea laciniata (Roxb.) DC. Prodr. 5: 436, 1834; Hook. f. in FBI 3: 264, 1881.

In waste places. Flowering. Daulatabad, Lakhaoti and Khurja. 19609, 25409 & 25562 (22-2-1962, 23-10-1962 & 20-4-1963).

Caesulia axillaris Roxb. Pl. Cor. 1: 64, t. 93, 1798; Hook. f. in FBI 3: 291, 1881 (Dila).

Near water. Flowering and fruiting. Daulatabad. 25390 (22-10-1962).

Carthamus oxycantha Bieb. Fl. Taur. Cauc. 2: 283, 1808; Hook. f. in FBI 3: 386, 1881.

In waste places and fallow fields. Flowering and fruiting. Lakhaoti and Dadri. 19619 & 25532 (23-2-1962 & 19-4-1963).

Cichorium intybus Linn. Sp. Pl. 813, 1753; Hook. f. in FBI 3: 391, 1881 (Kasni).

Cultivated. Flowering. Khurja. 25566 (20-4-1963).

Cirsium arvense (Linn.) Scop. Fl. Carn. 2: 126, 1772.

On canal sides. Flowering. Bulandshahr. 25504 (18-4-1963).

Cotula anthemoides Linn. Sp. Pl. 891, 1753; Hook. f. in FBI 3: 316, 1881.

In moist places. Flowering and fruiting. Alawa-Rahimpur, Bulandshahr and Lakhaoti. 19432, 25511 & 27424 (18-2-1962, 18-4-1963 & 24-4-1963).

Echinops echinatus Roxb. Fl. Ind. 3: 447, 1832; Hook. f. in FBI 3: 358, 1881 (Rhus).

In waste places and in Jamuna ravines. Flowering. Gulaoti and Jewar. 27418 & 31951 (23-4-1963 & 21-8-1964).

Eclipta prostrata (Linn.) Linn. Mant. 286, 1771 (Bhrangra).

In waste places near water. Flowering and fruiting. The oil extracted from its leaves is said to be used for blackening the hairs. Aurangabad, Bulandshahr and Delhi Road-Bulandshahr. 19460, 25309, 25523 & 31346 (19-2-1962, 19-10-1962, 18-4-1963 & 18-8-1964).

Erigeron bonariensis Linn. Sp. Pl. 863, 1753.

In cultivated fields. Flowering and fruiting. Dadri and Delhi Road (Bulandshahr). 25540 & 31334 (19-4-1963 & 18-8-1964).

Gnaphalium pulvinatum Delile Fl. Aegypte 122, t. 44, f. 1, 1813; Hook. f. in FBI 3: 289, 1881.

In dry clay. Flowering. Daulatabad. 27468 (28-4-1963).

G. purpureum Linn. Sp. Pl. 854, 1753; Hook. f. in FBI 3: 289, 1881.

In cultivated fields and waste places. Flowering and fruiting. Aurangabad and Khurja. 19458 & 25564 (19-2-1962 & 20-4-1963).

Grangea maderaspatana (Linn.) Poir. Encycl. Suppl. 2: 825, 1812; Hook. f. in FBI 3: 247, 1881.

In waste places. Flowering. Dankaur. 25575 (21-4-1963).

Launaea nudicaulis Hook. f. in FBI 3: 416, 1881.

In waste places. Flowering and fruiting. Alawa-Rahimpur, Lakhaoti, Bulandshahr and Jewar. 19440, 19618, 25501 & 31940 (18-2-1962, 23-2-1962, 18-4-1963 & 21-8-1964).

Pluchea lanceolata Clarke Comp. Ind. 94, 1876; Hook. f. in FBI 3: 272, 1881 (Bainsuri).

Covering the whole of the ground in fallow fields and waste places during summer. Flowering. Khurja. 25568 (20-4-1963).

Pulicaria crispa Sch.-Bip. in Webb. & Benth. Phyt. Canar. 2: 223, 1836-1847; Hook. f. in FBI 3: 299, 1881.

In waste places. Flowering. Aurangabad and Jewar. 19453 & 31947 (19-2-1962 & 21-8-1964).

Sonchus asper (Linn.) Hill. Britl. Herb. 1: 47, 1756; Hook. f. in FBI 3: 414, 1881.

In waste places. Flowering. Bulandshahr. 19462 (20-2-1962).

S. oleraceus Linn. Sp. Pl. 794, 1753; Hook. f. in FBI 3: 414, 1881.

In sugarcane fields near water. Flowering and fruiting. Siyana and Dadri. 19485 & 25549 (21-2-1962 & 19-4-1963).

Sphaeranthus indicus Linn. Sp. Pl. 1314, 1753; Hook. f. in FBI 3: 275, 1881.

In dry marshes. Flowering. Lakhaoti. 27421 (24-4-1963).

Tridax procumbens Linn. Sp. Pl. 900, 1753; Hook. i. in FBI 3: 311, 1881.

In cultivated fields and unaccounted lands. Flowering. Siyana, Khurja and Anupshahr. 25365, 25565 & 31388 (21-10-1962, 20-4-1963 & 19-8-1964).

Vernonia cinerea (Linn.) Less. in Linnaea 4: 291, 1829; Hook. f. in FBI 3: 233, 1881.

In waste places. Flowering. Bulandshahr. 19467, 25317 & 25507 (20-2-1962, 19-10-1962 & 18-4-1963).

Vicoa indica (Willd.) DC. in Wt. Contrib. 10, 1834 (Ghundi).

In *Sorghum vulgare* fields. Flowering. Lakhaoti-Aurangabad Road. 25330 (20-10-1962).

V. vestita Benth. ex Hook. f. in FBI 3: 297, 1881.

In fallow fields. Flowering. Anupshahr. 25589 (22-4-1963).

CAMPANULACEAE

Sphenoclea zeylanica Gaertn. Fruct. 1: 113, t. 24, 1788; Clarke in FBI 3: 438, 1881.

In rice fields. Flowering. Lakhaoti. 25407 & 33529 (23-10-1962 & 29-8-1964).

PRIMULACEAE

Anagallis arvensis Linn. Sp. Pl. 148, 1753; Hook. f. in FBI 3: 506, 1882.

In waste places and cultivated fields. Flowering. Lakhaoti and Bulandshahr. 19406 & 25527 (18-2-1962 & 18-4-1963).

EBENACEAE

Diospyros cordifolia Roxb. Pl. Cor. 1: 38, t. 50, 1795.

Probably planted. Fruiting. Daulatabad and Siyana. 19605, 27458 & 33515 (22-2-1962, 23-4-1963 & 28-8-1964).

OLEACEAE

Jasminum auriculatum Vahl Symb. Bot. 3: 1, 1794; Clarke in FBI 3: 600, 1882.

Along the roadsides. Flowering. Anupshahr. 31381 (19-8-1964).

SALVADORACEAE

Salvadora persica Linn. Sp. Pl. 122, 1753; Clarke in FBI 3: 619, 1882 (Pilu).

In gardens and Jamuna ravines. Fruiting. Khurja. 25567 (20-4-1963).

APOCYNACEAE

Carissa carandas Linn. Mant. 52, 1767; Hook. f. in FBI 3: 630, 1882 (Karonda).

Cultivated. Flowering and fruiting. Dankaur and Delhi Road (Bulandshahr). 25584 & 31331 (21-4-1963 & 18-8-1964).

C. spinarum Linn. Mant. 559, 1771; Hook. f. in FBI 3: 631, 1882.

In gangetic ravines. Flowering and fruiting. Narora. 31988 (25-8-1964).

Catharanthus pusillus (Murr.) G. Don Syst. 4: 95, 1836.

In the cultivated fields and waste places. Flowering and fruiting. Lakhaoti and Anupshahr. 25383 & 31907 (22-10-1962 & 19-8-1964).

Nerium indicum Mill. Gard. Dict. n. 2, 1768 (Kaner).

Cultivated. Flowering. Lakhaoti. 27465 (29-4-1963).

Rauvolfia serpentina (Linn.) Benth. ex Kurz, For. Fl. Burma 2: 171, 1877; Hook. f. in FBI 3: 632, 1882 (Sarpagandha).

In moist and shady places. Flowering and fruiting. Aurangabad. 31998 (27-8-1964).

Thevetia peruviana (Pers.) Merr. in Philip. Jour. Sci. (Bot). 9: 130, 1914. (Pili Kaner).

Cultivated. Flowering. Lakhaoti and Anupshahr. 27466 & 31911 (29-4-1963 & 19-8-1964).

Vallisneria spiralis (Linn.) Kuntze, Rev. Gen. 2: 417, 1891.

Cultivated. Flowering. Anupshahr. 25588 (22-4-1963).

ASCLEPIADACEAE

Calotropis procera (Ait.) R. Br. in Ait. f. Hort. Kew. 2: 78, 1811; Hook. f. in FBI 4: 18, 1883.

In unaccounted lands. Flowering and fruiting. Daulatabad, Bulandshahr and Jewar. 19603, 25513 & 31950 (22-2-1962, 18-4-1963 & 21-8-1964).

Leptadenia pyrotechnica (Forsk.) Decne. in Ann. Sc. Nat. (ser. 2) 9: 269, 1938.

In the gangetic ravines. Flowering. Narora. 31977 (25-8-1964).

Oxystelma secamone (Linn.) K. Schum. in Engl. & Prantl, Nat. Pfam. 4(2): 229, 1895.

Along the roadsides. Flowering and fruiting. Kot ka pul. 31964 (22-8-1964).

Pergularia daemia (Forsk.) Blatt. & McC. in Jour. Bomb. Nat. Hist. Soc. 36(3): 528, 1933.

In waste lands near bushes. Flowering. Jewar. 31943 (21-8-1964).

Telosma pallida (Roxb.) Craib. in Kew Bull. 418, 1911.

In waste lands. Flowering. Aurangabad. 32000 (27-8-1964).

GENTIANACEAE

Centaurium roxburghii (Don) Druce in Rep. Bot. Exch. Club Brit. Isl. 4: 614, 1916.

In moist places. Flowering. Bulandshahr, Gulaoti and Siyana. 25505, 27414 & 27446 (18-4-1963, 23-4-1963 & 27-4-1963).

HYDROPHYLLACEAE

Hydrolea zeylanica (Linn.) Vahl, Symb. Bot. 2: 46, 1791; Clarke in FBI 4: 133, 1883.

In marshy clay soils. Flowering. Lakhaoti. 25402 (23-10-1962).

BORAGINACEAE

Arnebia hispidissima (Lehm.) DC. Prodr. 10: 94, 1846; Clarke in FBI 4: 176, 1883.

In waste places and fallow fields. Flowering. Anupshahr & Jewar. 27401 & 31945 (22-4-1963 & 21-8-1964).

Cordia dichotoma Forst. f. Prodr. 18, 1876 (Lab-hera).

Planted. Fruiting. Dadri. 25546 (19-4-1963).

Cynoglossum furcatum Wall. in Roxb. Fl. Ind. 2: 6, 1832; Clarke in FBI 4: 155, 1883.

In cultivated fields. Flowering and fruiting. Anupshahr. 31383 (19-8-1964).

Heliotropium eichwaldii Steud. ex DC. Prodr. 9: 535, 1845; Clarke in FBI 4: 149, 1883.

Flowering and fruiting. Bulandshahr, Lakhaoti, Dadri and Kot ka pul. 19463, 25413, 255336 & 31962 (20-2-1962, 24-10-1962, 19-4-1963 & 22-8-1964).

H. strigosum Willd. Sp. Pl. 743, 1798; Clarke in FBI 4: 151, 1883.

In cultivated fields and waste places near moisture. Flowering and fruiting. Aurangabad, Daulatabad, Anupshahr and Narora. 25356, 27453, 31395, 31991 (20-10-1962, 28-4-1963, 19-8-1964 & 25-8-1964).

Trichodesma indicum R. Br. Prodr. 496, 1810; Clarke in FBI 4: 153, 1883.

In cultivated fields and waste places. Flowering. Daulatabad, Lakhaoti, Anupshahr, Daulatabad and Anupshahr. 19601, 25382, 25599, 27452 & 31902 (22-2-1962, 22-10-1962, 22-4-1963, 28-4-1963 & 19-8-1964).

CONVOLVULACEAE

Convolvulus arvensis Linn. Sp. Pl. 153, 1753; Clarke in FBI 4: 219, 1883 (Hirankhuri).

In wheat fields and waste places. Flowering. Alawa-Rahimpur. 19436 (18-2-1962).

C. microphyllus Sieb. ex Spreng. Syst. 1: 611, 1824; Clarke in FBI 4: 218, 1883.

Abundant in waste places and cultivated fields. Flowering and fruiting. Daulatabad, Aurangabad, Bulandshahr, Daulatabad and Jewar. 19607, 25343, 25515, 27454 & 31937 (22-2-1962, 20-10-1962, 18-4-1963, 28-4-1963 & 21-8-1964).

Cuscuta capitata Roxb. Fl. Ind. 1: 448, 1820; Clarke in FBI 4: 227, 1883; Singh in Bull. Bot. Surv. India 6 (2-4): 305, 1964.

In Rijka (*Medicago sativa* Linn.) fields. Flowering. Aurangabad. 27435 (26-4-1963).

Evolvulus alsinoides (Linn.) Linn. Sp. Pl. 392, 1762; Clarke in FBI 4: 220, 1883.

In unaccounted lands. Flowering and fruiting. Daulatabad and Narora. 25391 & 31975 (22-10-1962 & 25-8-1964).

E. nummularius (Linn.) Linn. Sp. Pl. 391, 1762; Santapau in Jour. Bomb. Nat. Hist. Soc. 47, 2: 341, 1947.

In the roadside ditches. Flowering. Delhi road (Bulandshahr). 31352 (18-8-1964).

Ipomoea aquatica Forsk. Fl. Aegypt.-Arab. 44, 1775; Clarke in FBI 4: 210, 1883.

Amphibious. Flowering and fruiting. Aurangabad. 19445 & 25348 (19-2-1962 & 20-10-1962).

I. crassicaulis (Benth.) B. L. Robinson, Proc. Amer. Acad. 51: 530, 1916; Fl. Malesiana 4: 485, 1953. Planted within the area as soil binder. Flowering. Dankaur. 25572 (21-4-1963).

I. eriocarpa R. Br. Prodr. 484, 1810; Clarke in FBI 4: 204, 1883.

In Jwar fields. Flowering and fruiting. Lakhaoti. 25381 (22-10-1962).

Ipomoea nil (Linn.) Roth, Cat. Bot. 1: 36, 1797.

In gardens near hedges. Fruiting. Siyana. 25373 (21-10-1962).

I. obscura (Linn.) Ker-Gawl. in Bot. Reg. t. 239, 1817; Clarke in FBI 4: 207, 1883.

Near the bushes. Flowering. Lakhaoti. 33533 (29-8-1964).

I. pes-tigridis Linn. Sp. Pl. 162, 1753; Clarke in FBI 4: 204, 1883.

In waste places and cultivated fields. Fruiting. Siyana. 25360 (21-10-1962).

I. sepiaria Koen. ex Roxb. Fl. Ind. 2: 90, 1824; Clarke in FBI 4: 209, 1883.

In waste lands. Flowering. Alawa-Rahimpur. 25411 (23-10-1962).

SOLANACEAE

Capsicum annuum Linn. var. *acuminata* Fingerh. in Mon. Gen. Caps. 13, t. 2, f.c., 1832 (Lal Mirch). Cultivated. Flowering and fruiting. Pahasu. 31929 (20-8-1964).

Datura innoxia Mill. Gard. Dict. n. 5, 1768.

In waste places like brick chimneys. Flowering and fruiting. Lakhaoti. 25421 & 27463 (24-10-1962 & 29-4-1963).

Nicotiana plumbaginifolia Viv. Eleuch. Pl. Hort. Dinegro 26, t.5, 1802; Clarke in FBI 4: 246, 1883.

In roadside ditches and waste places near moisture. Flowering and fruiting. Siyana, Bulandshahr, Siyana, Delhi Road (Bulandshahr). 19490, 25303, 25526, 27437 & 31356 (21-2-1962, 19-10-1962, 18-4-1963, 27-4-1963 & 18-8-1964).

Physalis minima Linn. Sp. Pl. 183, 1753; Clarke in FBI 4: 238, 1883 (Rasbhari).

On the sides of the cultivated fields and waste lands near moisture. Flowering and fruiting. Ramgarh (Lakhaoti) and Anupshahr. 25393 & 31908 (22-10-1962 & 19-8-1964).

Solanum nigrum Linn. Sp. Pl. 186, 1753; Clarke in FBI 4: 229, 1883 (Papotan or Makoi).

In cultivated fields and waste places. Flowering and fruiting. Aurangabad, Dadri and Pahasu. 19452, 25543 & 31930 (19-2-1962, 19-4-1963 & 20-8-1964).

S. surattense Burm. f. Fl. Ind. 57, 1768.

In waste places. Flowering and fruiting. Daulatabad, Lakhaoti-Aurangabad Road, Bulandshahr and Delhi Road (Bulandshahr). 19612, 25328, 25522 & 31354 (22-2-1962, 20-10-1962, 18-4-1963 & 18-8-1964).

Withania somnifera (Linn.) Dunal in DC. Prodr. 13 (1): 453, 1852; Clarke in FBI 4: 239, 1883.

In waste places. Flowering and fruiting. Aurangabad, Lakhaoti-Aurangabad Road, Dankaur and

Jewar. 19456, 25340, 25586 & 31954 (19-2-1962, 20-10-1962, 21-4-1963 & 21-8-1964).

SCROPHULARIACEAE

Antirrhinum orontium Linn. Sp. Pl. 617, 1753; Hook. f. in FBI 4: 253, 1883.

In moist places. Flowering and fruiting. Siyana. 19486 (21-2-1962).

Bacopa monnieri (Linn.) Pennell in Proc. Acad. Nat. Sci. Philad. 98: 94, 1946.

In marshy places. Flowering. Sahanpur river (Siyana). 25375 (21-10-1962).

Dopatrium juncum (Roxb.) Buch.-Ham. ex Benth. Scroph. Ind. 31, 1835; Hook. f. in FBI 4: 274, 1884.

Amphibious. Flowering and fruiting. Daulatabad. 25385 (22-10-1962).

Glossostigma spathulatum (Hook. ex Wt.) Arn. ex Benth. in Comp. Bot. Mag. 2: 59, 1836; Hook. f. in FBI 4: 288, 1884.

In marshy places, covering the ground. Flowering. Daulatabad. 25397 (22-10-1962).

Limnophylla indica (Linn.) Bruce in Rep. Bot. Exch. Club. Brit. Is. 3: 420, 1914.

In marshy places. Flowering. Lakhaoti. 25404 (23-10-1962).

Lindernia ciliata (Colsm.) Pennell in Jour. Arn. Arb. 24: 253, 1943.

In cultivated fields, waste places and gangetic ravines. Flowering. Siyana, Lakhaoti and Anupshahr. 25367, 25415 & 31397 (21-10-1962, 24-10-1962 & 19-8-1964).

L. crustacea (Linn.) F. V. Muell. Gens. Austr. Pl. 97, 1882.

In cultivated fields, waste places and gangetic ravines. Flowering. Siyana, Pahasu and Narora. 25416, 31924 & 31984 (24-10-1962, 20-8-1964 & 25-8-1964).

Mazus japonicus (Thunb.) Ktze. Rev. Gen. 462, 1891.

Near water. Flowering. Bulandshahr and Siyana. 19479 & 27447 (20-2-1962 & 27-4-1963).

Scoparia dulcis Linn. Sp. Pl. 166, 1753; Hook. f. in FBI 4: 289, 1884.

In waste lands and gangetic ravines near water. Flowering and fruiting. Siyana, Gangnahar (Bulandshahr) and Narora. 25370, 31376 & 31982 (21-10-1962, 18-8-1964 & 25-8-1964).

Striga angustifolia (Don) Saldanha in Bull. Bot. Surv. India 5: 67-70, 1963.

In Jwar fields. Flowering. Alawa-Rahimpur. 25410 (20-10-1962).

Verbascum chinense (Linn.) Santapau, Fl. Purandhar 90, 1957.

In unaccounted lands near moisture. Flowering and fruiting. Bulandshahr, Lakhaoti, Lakhaoti-Aurangabad Road, Bulandshahr, Gangnahar (Bulandshahr). 19483, 19624, 25350, 25524 & 31371 (20-2-1962, 23-2-1962, 20-10-1962, 18-4-1963 & 18-8-1964).

Veronica agrestis Linn. Sp. Pl. 13, 1753; Hook. f. in FBI 4: 294, 1884.

In cultivated fields and waste places near water. Flowering and fruiting. Alawa-Rahimpur and Siyana. 19429 & 28445 (18-2-1962 & 27-4-1963).

V. anagallis-aquatica Linn. Sp. Pl. 12, 1753; Hook. f. in FBI 4: 293, 1884.

In sandy soil near water. Flowering and fruiting. Lakhaoti and Anupshahr. 19404 & 27402 (18-2-1962 & 22-4-1963).

LENTIBULARIACEAE

Utricularia flexuosa Vahl, Enum. 1: 198, 1804; Clarke in FBI 4: 329, 1884.

In ponds and puddles. Flowering. Daulatabad. 25389 (22-10-1962).

U. stellaris Linn. f. Suppl. 86, 1781; Clarke in FBI 4: 328, 1884.

In ponds and puddles. Flowering and fruiting. Daulatabad. 25388 (22-10-1962).

PEDALIACEAE

Martynia annua Linn. Sp. Pl. 618, 1753.

In the undergrowth of the orchards. Flowering. Siyana. 33519 (28-8-1964).

Pedaliium murex Linn. Syst. 1123, 1759; Clarke in FBI 4: 386, 1884.

In waste places and gangetic ravines in moist shady places. Flowering and fruiting. Siyana and Narora. 25374 & 31985 (21-10-1962 & 25-8-1964).

Sesamum indicum Linn. Sp. Pl. 634, 1753; Clarke in FBI 4: 387, 1884 (Til).

Cultivated. Flowering and fruiting. Pahasu. 31920 (20-8-1964).

S. mulayanum Nair in Bull. Bot. Surv. India 5(3-4): 251, 1963.

Growing along with *S. indicum* and also as an escape along the sides of the sugarcane fields. Flowering and fruiting. Lakhaoti and Pahasu. 25422 & 31933 (24-10-1962 & 20-8-1964).

ACANTHACEAE

Adhatoda vasica Nees in Wall. Pl. As. Rar. 3: 103, 1882; Clarke in FBI 4: 540, 1885.

Forming clumps in unaccounted lands. Flowering. Lakhaoti and Daulatabad. 19420 & 27455 (18-2-1962 & 28-4-1963).

Dicliptera roxburghiana Nees in Wall. Pl. As. Rar. 3: 111, 1832; Clarke in FBI 4: 553, 1885.

In waste places. Flowering. Lakhaoti. 27425 (24-4-1963).

Elytraria acaulis (Linn. f.) Lindau in Engl. & Prantl, Nat. Pfam. Nachtr. 1: 304, 1897.

In waste places. Flowering. Daulatabad. 27457 (28-4-1963).

Hemigraphis hirta T. Anders. in Jour. Linn. Soc. Bot. 9: 462, 1867; Clarke in FBI 4: 422, 1884.

In roadside ditches and canal banks. Flowering. Bulandshahr and Siyana. 25506 & 27440 (18-4-1963 & 27-4-1963).

Hygrophila auriculata (Schum.) Heine in Kew Bull. 16, 2: 172, 1962.

In moist places. Flowering. Aurangabad and Gulaoti. 25347 & 27413 (20-10-1962 & 23-4-1963).

Justicea simplex D. Don, Prodr. Fl. Nepal 118, 1825; Clarke in FBI 4: 539, 1885.

Along the roadsides. Flowering. Jewar. 31938 (21-8-1964).

Peristrophe bicalyculata (Retz.) Nees in Wall. Pl. As. Rar. 3: 113, 1832; Clarke in FBI 4: 554, 1885.

In waste places. Flowering. Lakhaoti-Aurangabad Road. 25333 (20-10-1962).

Rungia parviflora Nees in Wall. Pl. As. Rar. 3: 110, 1832; Clarke in FBI 4: 550, 1885.

Under the guava trees. near moist places. Flowering. Bulandshahr. 19468 (20-2-1962).

R. pectinata (Linn.) Nees in DC. Prodr. 11: 470, 1847.

In guava orchards. Flowering. Bulandshahr. 25312 (19-10-1962).

VERBENACEAE

Clerodendrum indicum (Linn.) Ktze, Rev. Gen. 586, 1891.

In waste moist places. Flowering. Lakhaoti. 33554 (1-11-1964).

C. phlomidis Linn. f. Suppl. 292, 1781.

In waste places. Fruiting. Lakhaoti-Aurangabad Road. 25334 (20-10-1962).

Duranta repens Linn. Sp. Pl. 637, 1753.

Planted as hedge plant in gardens. Flowering and fruiting. Lakhaoti. 33552 (1-11-1964).

Gmelina asiatica Linn. in Roxb. Fl. Ind. 3: 87, 1832; Clarke in FBI 4: 582, 1885.

Planted in gardens. Flowering. Narora. 31993 (25-8-1964).

Lantana camara Linn. var. *aculeata* (Linn.) Moldenka in Torreyia 34: 9, 1934; Clarke in FBI 4: 562, 1885.

Cultivated in gardens and also found wild in the gangetic ravines. Flowering. Siyana and Anupshahr. 19493, 25372, 25592 & 31385 (21-2-1962, 21-10-1962, 22-4-1963 & 19-8-1964).

Phyla nodiflora (Linn.) Greene in Pittonia 4: 46, 1899.

Near water. Flowering and fruiting. Bulandshahr. 25319, 25502 & 31357 (19-10-1962, 18-4-1963 & 18-8-1964).

Verbena officinalis Linn. Sp. Pl. 20, 1753; Clarke in FBI 4: 565, 1885.

Near water. Flowering and fruiting. Bulandshahr, Gulaoti and Gangnahar (Bulandshahr). 25510, 27415 & 31377 (18-4-1963, 23-4-1963 & 18-8-1964).

Vitex negundo Linn. Sp. Pl. 638, 1753; Clarke in FBI 4: 583, 1885.

In waste places. Flowering. Alawa-Rahimpur. Dadri and Siyana. 25412, 25539 & 33512 (23-10-1962, 19-4-1963 & 28-8-1964).

LABIATAE

Anisomeles indica (Linn.) Ktze. Rev. Gen. 512, 1891.

In moist waste places. Flowering. Siyana. 25357 & 33520 (21-10-1962 & 28-8-1964).

Clinopodium umbrosum (M. Bieb.) Koch in Linnaea 2: 673, 1848; Singh in Bull. Bot. Surv. India 6(2-4): 305, 1964.

In gangetic ravines. Flowering. Anupshahr. 27406 (22-4-1963).

Leucas aspera (Willd.) Spreng. Syst. 2: 743, 1825; Hook. f. in FBI 4: 690, 1885.

In waste places. Flowering. Lakhaoti. 19615 (23-2-1962).

L. cephalotes Spreng. Syst. 2: 743, 1825; Hook. f. in FBI 4: 689, 1885.

In waste places and cultivated fields like sugarcane etc. Flowering. Lakhaoti-Aurangabad Road and Anupshahr. 25337 & 31387 (20-10-1962 & 19-8-1964).

L. nutans Spreng. Syst. 2: 743, 1825; Hook. f. in FBI 4: 688, 1885.

Along the canal sides. Flowering. Lakhaoti. 27461 (29-4-1963).

Nepeta hindostana (Roth) Haines in Bot. Bih. & Orr. 744, 1922.

In waste places. Flowering. Siyana. 19484, 25363 & 33511 (21-2-1962, 21-10-1962 & 28-8-1964).

Ocimum americanum Linn. Cent. Pl. 1: 15, 1755 (Jangli Tulsa).

In waste places. Flowering. Siyana. 25362 (21-10-1962).

O. basilicum Linn. Sp. Pl. 597, 1753; Hook. f. in FBI 4: 608, 1885 (Marua).

Along the sides of the cultivated fields. Flowering. Anupshahr. 31905 (19-8-1964).

Orthosiphon pallidus Royle ex Benth. in Hook. f. Bot. Misc. 3: 370, 1883; Hook. f. in FBI 4: 613, 1885.

In gangetic ravines. Flowering. Anupshahr. 31906 (19-8-1964).

Pogostemon plectranthoides Desf. in Mem. Mus. Hist. Nat. Par. 2: 155, t. 6, 1815; Hook. f. in FBI 4: 632, 1885.

On the canal-sides. Flowering. Siyana. 27443 (27-4-1963).

Salvia plebeia R. Br. Prodr. 501, 1810; Hook. f. in FBI 4: 655, 1885.

In waste places. Flowering. Bulandshahr and Siyana. 19476, 25519 & 27441 (20-2-1962, 18-4-1963 & 27-4-1963).

NYCTAGINACEAE

Boerhavia chinensis (Burm.f.) Druce in Rep. Bot. Exch. Cl. Brit. Isl. 1913, 3: 415, 1914.

Along the canal-sides. Flowering. Gangnahar (Bulandshahr). 31368 (18-8-1964).

B. diffusa Linn. Sp. Pl. 3, 1753.

In waste places. Flowering. Lakhaoti-Aurangabad Road, Dankaur and Jewar. 25331, 25574 & 31939 (20-10-1962, 21-4-1963 & 21-8-1964).

AMARANTHACEAE

Achyranthes aspera Linn. Sp. Pl. 204, 1753; Hook. f. in FBI 4: 730, 1885 (Chirchita).

In waste places. Flowering. Aurangabad, Bulandshahr & Pahasu. 19459, 25315 & 31934 (19-2-1962, 19-10-1962 & 20-8-1964).

Aerva sanguinolenta (Linn.) Blume. Bijdr. 547, 1825.

In moist places. Flowering. Gulaoti. 27412 (23-4-1963).

Alternanthera sessilis (Linn.) DC. Cat. Hort. Monsp. 77, 1813; Hook. f. in FBI 4: 731, 1885.

Near water. Flowering and fruiting. Aurangabad, Bulandshahr and Delhi Road (Bulandshahr). 19441, 25324, 25518 & 31349 (19-2-1962, 19-10-1962, 18-4-1963 & 18-8-1964).

Amaranthus gracilis Desf. Talb. Ec. Bot. 43, 1804.

In waste places. Flowering. Alawa-Rahimpur and Aurangabad. 19425 & 33501 (18-2-1962 & 27-8-1964).

A. hybridus Linn. subsp. **cruentus** (Linn.) Thell. var. **paniculatus** (Linn.) Thell. in Aschers. & Graebn. Syn. 5(1): 247, 1914.

Near water in shade. Flowering. Siyana. 19491 (21-2-1962).

Amaranthus spinosus Linn. Sp. Pl. 991, 1753; Hook. f. in FBI 4: 718, 1885.

In waste places and Jumna ravines. Flowering and fruiting. Siyana, Bulandshahr, Dadri and Jewar. 19489, 25304, 25535 & 31955 (21-2-1962, 19-10-1962, 19-4-1963 & 21-8-1964).

A. tricolour Linn. Sp. Pl. 989, 1753.

In cultivated fields and waste places. Flowering. Aurangabad, Siyana and Aurangabad. 27431, 27449 & 33505 (26-4-1963, 27-4-1963 & 27-8-1964).

Celosia argentea Linn. Sp. Pl. 205, 1753; Hook. f. in FBI 4: 714, 1885.

In cultivated fields. Flowering. Lakhaoti. 33551 (1-11-1964).

Digera muricata (Linn.) Mart. Beitr. Amar. 77, no. 2, 1825.

In waste places and carrot fields. Flowering. Lakhaoti and Delhi Road (Bulandshahr). 25414 & 31333 (24-10-1962 & 18-8-1964).

Gomphrena celosioides Mart. Beitr. Amar. 93, 1825; Raizada in Jour. Bomb. Nat. Hist. Soc. 48: 675, 1949 & Ind. For. Rec. 4, 3: 68, 1951 (Kathli).

In waste places. Flowering and fruiting. Aurangabad, Dankaur and Delhi Road (Bulandshahr). 25353, 25580 & 31355 (20-10-1962, 21-4-1963 & 18-8-1964).

Puppalia lappacea (Linn.) Juss. in Ann. Musc. Par. 2: 132, 1803; Hook. f. in FBI 4: 724, 1885.

In waste places. Flowering. Siyana, Anupshahr and Jewar. 25369, 25594 & 31944 (21-10-1962, 22-4-1963 & 21-8-1964).

CHENOPODIACEAE

Chenopodium album Linn. Sp. Pl. 219, 1753; Hook. f. in FBI 5: 3, 1886 (Bathua).

In cultivated fields. Flowering and fruiting. Lakhaoti and Aurangabad. 19411 & 27430 (18-2-1962 & 26-4-1963).

C. ambrosioides Linn. Sp. Pl. 219, 1753; Hook. f. in FBI 5: 4, 1886.

In waste places. Flowering and fruiting. Bulandshahr, Gulaoti and Pahasu. 19464, 25303, 27411 & 31912 (20-2-1962, 19-10-1962, 23-4-1963 & 20-8-1964).

C. murale Linn. Sp. Pl. 219, 1753; Hook. f. in FBI 5: 4, 1886.

In waste places. Flowering and fruiting. Lakhaoti & Dadri. 19402 & 25553 (18-2-1962 & 19-4-1963).

Kochia trichophylla Stapf in Jour. Hort. 3: 39, 1880 & Revue Horticole 119, 1907; Bailey, Stand. Cyclo. Hort. 2: 1755, 1928.

Planted in gardens. Flowering and fruiting. Lakhaoti. 33553 (1-11-1964).

POLYGONACEAE

Polygonum glabrum Willd. Sp. Pl. 2: 477, 1799; Hook. f. in FBI 5: 34, 1886.

In marshy places. Flowering. Bulandshahr. 19477 & 25320 (20-2-1962 & 19-10-1962).

P. plebejum R. Br. Prodr. 420, 1810; Hook. f. in FBI 5: 27, 1886.

Abundant in waste places, cultivated fields and also near ponds and puddles. Flowering and fruiting. Lakhaoti, Aurangabad, Dadri, Lakhaoti and Aurangabad. 19401, 25352, 25537, 27423 & 33506 (18-2-1962, 20-10-1962, 19-4-1963, 24-4-1963 & 27-8-1964).

P. barbatum Linn. subsp. **gracile** Dauser in Bull. Jard. Bot. Buitenz. (ser. 3) 8: 146, 1927.

Along the canal sides in water. Flowering. Gangnagar (Bulandshahr). 31375 (19-8-1964).

P. stagninum Buch.-Ham. ex Meissn. in Wall. Pl. As. Rar. 3: 56, 1832; Hook. f. in FBI 5: 37, 1886.

In moist, shady places. Flowering. Anupshahr. 27405 (22-4-1963).

Rumex dentatus Linn. Mant. 2: 226, 1771; Hook. f. in FBI 5: 59, 1886.

In moist places. Flowering. Aurangabad and Bulandshahr. 19451 & 25509 (19-2-1962 & 18-4-1963).

EUPHORBIACEAE

Chrozophora obliqua A. Juss. var. **hierosolymitana** Spreng. Syst. 850, 1825-26; Duthie in Fl. Upp. Gang. Pl. (Rev. ed.) 2: 206, 1960.

In waste places and along the sides of the cultivated fields. Flowering and fruiting. Dankaur and Jewar. 25578 & 31949 (21-4-1963 & 21-8-1964).

Croton bonplandianum Baill. in Adans. 4: 339, 1864.

In waste lands, roadside ditches and fallow fields. Flowering and fruiting. Lakhaoti, Dankaur and Siyana. 19620, 25420, 25573 & 33514 (23-2-1962, 24-10-1962, 21-4-1963 & 28-8-1964).

Emblica officinalis Gaertn. Fruct. 2: 122, 1790 (Aonla).

Planted. Flowering. Dankaur. 25585 (21-4-1963).

Euphorbia clarkeana Hook. f. in FBI 5: 253, 1887.

In the gangetic ravines. Flowering and fruiting. Narora. 31986 (25-8-1964).

E. dracunculoides Lamk. Encycl. 2: 428, 1788; Hook. f. in FBI 5: 262, 1887.

In waste places and fallow fields. Flowering and fruiting. Alawa-Rahimpur and Dadri. 19423 & 25538 (19-2-1962 & 19-4-1963).

Euphorbia geniculata Orteg. Nov. Rar. Pl. Matr. 18, 1797; Hook. f. in FBI 5: 266, 1887.

In garden beds. Fruiting. Lakhaoti. 33531 (29-8-1964).

E. hirta Linn. Sp. Pl. 454, 1753 (Duddhi).

In waste places. Flowering and fruiting. Bulandshahr, Aurangabad and Delhi Road (Bulandshahr). 25318, 27432 & 31339 (19-10-1962, 26-4-1963 & 18-8-1964).

E. hypericifolia Linn. Sp. Pl. 454, 1753; Hook. f. in FBI 5: 249, 1887.

In waste places and Jumna ravines near water. Flowering and fruiting. Ramgarh (Lakhaoti) and Jewar. 25392 & 31953 (22-10-1962 & 21-8-1964).

E. microphylla Lamk. Encycl. 2: 423, 1786; Hook. f. in FBI 5: 252, 1887.

In waste places. Flowering and fruiting. Dankaur. 25576 (21-4-1963).

E. prostrata Ait. Hort. Kew. 2: 139, 1789; Hook. f. in FBI 5: 266, 1887.

In waste places. Flowering and fruiting. Alawa-Rahimpur, Bulandshahr and Delhi Road (Bulandshahr). 19435, 25307, 25517 & 31348 (18-2-1962, 19-10-1962, 18-4-1963 & 18-8-1964).

Kirganelia reticulata (Poir.) Baill. Etud. Gen. Euph. 613, 1858.

Along the canal sides. Flowering and fruiting. Siyana and Gangnahr (Bulandshahr). 25361 & 31360 (21-10-1962 & 18-8-1964).

Phyllanthus fraternus Webst. in Contr. Gray Herb. No. 176, 53, 1955.

In cultivated fields and waste places. Flowering and fruiting. Bulandshahr and Delhi Road (Bulandshahr). 25306 & 31332 (19-10-1962 & 18-8-1964).

P. urinaria Linn. Sp. Pl. 982, 1753; Hook. f. in FBI 5: 293, 1887.

In the undergrowth of orchards. Fruiting. Pahasu. 31922 (20-8-1964).

Ricinus communis Linn. Sp. Pl. 1007, 1753; Hook. f. in FBI 5: 457, 1887 (Andi).

In waste lands. Flowering and fruiting. Alawa-Rahimpur. 19428 (18-2-1962).

URTICACEAE

Cannabis sativa Linn. Sp. Pl. 1027, 1753; Hook. f. in FBI 5: 487, 1888 (Bhang).

In waste places and cultivated fields in moist lands. Flowering and fruiting. Siyana and Anupshahr. 27450 & 31392 (27-4-1963 & 19-8-1964).

Ficus benghalensis Linn. Sp. Pl. 1059, 1753; Hook. f. in FBI 5: 499, 1888 (Bargad).

Planted. Flowering and fruiting. Narora. 31981 (25-8-1964).

F. glomerata Roxb. Pl. Cor. 2: 13, t. 123, 1799; Hook. f. in FBI 5: 535, 1888 (Gular).

In orchards. Flowering and fruiting. Dibai. 31971 (24-8-1964).

F. palmata Forsk. Fl. Aegypt.-Arab. 179, 1755; Hook. f. in FBI 5: 530, 1888 (Anjir).

In waste places. Flowering and fruiting. Daulatabad & Gularoti. 19602 & 27416 (22-2-1962 & 23-4-1963).

F. religiosa Linn. Sp. Pl. 1059, 1753; Hook. f. in FBI 5: 513, 1888 (Pipal).

Planted and wild both. Flowering and fruiting. Kot ka pul. 31963 (22-8-1964).

F. rumphii Blume, Bijdr. 437, 1825; Hook. f. in FBI 5: 512, 1888.

Probably planted. Flowering and fruiting. Daulatabad. 19608 (22-2-1962).

Morus alba Linn. Sp. Pl. 986, 1753; Hook. f. in FBI 5: 492, 1888 (Shahtut).

Planted. Flowering. Daulatabad. 19611 (22-2-1962).

Pouzolzia zeylanica (Linn.) Benn. Pl. Jav. Rar. 67, 1838.

In the undergrowth of the orchards. Flowering. Pahasu. 31921 (20-8-1964).

P. pentandra (Roxb.) Benn. Pl. Jav. Rar. 67, 1838; Hook. f. in FBI 5: 583, 1888.

Along the canal-sides. Flowering. Bulandshahr. 25531 & 31359 (18-4-1963 & 18-8-1964).

Streblus asper Lour. Fl. Cochinch. 2: 615, 1790; Hook. f. in FBI 5: 489, 1888.

Planted. Flowering and fruiting. Siyana. 27442 (27-4-1963).

CERATOPHYLLACEAE

Ceratophyllum demersum Linn. Sp. Pl. 992, 1753; Hook. f. in FBI 5: 639, 1888.

In ponds and puddles. Flowering and fruiting. Alawa-Rahimpur, Siyana and Kot ka pul. 19434, 25376 & 31960 (18-2-1962, 20-10-1962 & 22-8-1964).

AGAVACEAE

Agave sisalana Perrine: D. & P. in Agri. Ledger No. 7 (under letter G) p. 89, 1906; Duthie in Fl. Upp. Gang. Pl. (Rep. ed.) 2: 316, 1960.

Along the 'bunds' of gardens and cultivated fields. Flowering. Dibai. 31974 (24-8-1964).

DIOSCOREACEAE

Dioscorea bulbifera Linn. Sp. Pl. 1033, 1753.

In shady places in orchards. Fruiting. Lakhaoti. 33534 (29-8-1964).

LILIACEAE

Asphodelus tenuifolius Cav. in An. Cienc. Nat. 3 : 46, t. 27, f. 2, 1801; Hook. f. in FBI 6 : 332, 1892 (Piazi).

In cultivated fields and waste places. Flowering and fruiting. Lakhaoti and Bulandshahr. 19407 & 25528 (18-2-1962 & 18-4-1963).

PONTEDERIACEAE

Eichhornia crassipes (Mart.) Solms in DC. Mon. Phan. 4 : 527, 1882; Haines in Bot. Bih. & Orr. 1102, 1924 (Samudrasakh).

Abundant in roadside ditches and ponds. Flowering. Delhi Road (Bulandshahr). 31358 (18-8-1964).

Monochoria vaginalis Presl, Reliq. Hoenk. 1 : 128, 1830; Hook. f. in FBI 6 : 363, 1892.

Amphibious. Flowering. Lakhaoti. 33522 (29-8-1964).

M. vaginalis Presl. var. **plantaginea** Solms-Laub. in A. DC. Monogr. Phanerog. 4 : 524, 1883; Hook. f. in FBI 6 : 363, 1892.

Amphibious. Flowering. Daulatabad. 25386 (22-10-1962).

COMMELINACEAE

Commelina hasskarlii Clarke, Comm. & Cyrt. Beng. 13, t. 5, 1874; Hook. f. in FBI 6 : 370, 1892.

In guava orchards. Flowering. Bulandshahr. 25316 (19-10-1962).

Cyanotis axillaris (Linn.) Schult. f. Syst. 7 : 1154, 1830; Hook. f. in FBI 6 : 388, 1892.

Along the sides of the water accumulations. Flowering. Lakhaoti. 33528 (29-8-1964).

Murdannia nudiflora (Linn.) Brenan in Kew. Bull. 1952 : 189.

In the gangetic ravines. Flowering. Anupshahr. 31393 (19-8-1964).

JUNCACEAE

Juncus bufonius Linn. Sp. Pl. 328, 1753; Hook. f. in FBI 6 : 392, 1892.

Near water. Flowering. Bulandshahr. 19481 (20-2-1962).

LEMNACEAE

Lemna paucicostata Hegelmaier, Lemnac. 138, t. 8, 1868; Hook. f. in FBI 6 : 556, 1893.

In ponds and puddles. Often covering the ponds surfaces. Ramgarh (Lakhaoti). 25396 (22-10-1962).

Spirodela polyrhiza (Linn.) Schleid. in Linnaea 13 : 392, tt. 5 & 6. 1839.

In ponds and puddles, at times forming a felt on the water surface. Aurangabad and Daulatabad. 19446 & 25395 (19-2-1962 & 22-10-1962).

ALISMATACEAE

Limnophyton obtusifolium Miq. Fl. Ind. Bat. 3 : 243, 1855; Hook. f. in FBI 6 : 560, 1893.

Along the water-accumulations. Flowering. Lakhaoti. 25406 (23-10-1962).

Sagittaria guayanensis H.B. & K. Nov. Gen. & Sp. 1 : 250, 1815; Hook. f. in FBI 6 : 561, 1893 (Sirca).

In ponds and puddles. Flowering and fruiting. Daulatabad and Dibai. 25394 & 31973 (22-10-1962 & 24-8-1964).

APONOGETONACEAE

Aponogeton natans (Linn.) Engl. & Krause in Pfreich. 24 : 11, 1906.

In flooded fields. Flowering. Daulatabad and Lakhaoti. 25387 & 33530 (22-10-1962 & 29-8-1964).

POTAMOGETONACEAE

Potamogeton indicus Roxb. Fl. Ind. 1 : 452, 1832; Hook. f. in FBI 6 : 565, 1893.

In ponds and puddles. Flowering. Sahanpur river (Siyana). 19500 (21-2-1962).

P. crispus Linn. Sp. Pl. 126, 1753; Hook. f. in FBI 6 : 566, 1893.

In ponds and puddles. Flowering. Sahanpur river (Siyana). 19496 (21-2-1962).

P. pectinatus Linn. Sp. Pl. 127, 1753; Hook. f. in FBI 6 : 567, 1893 (Sewar).

In ponds and puddles. Flowering. Bulandshahr. 19474 (20-2-1962).

ERIOCAULACEAE

Eriocaulon sieboldianum Sieb. & Zucc. ex Steud. Syn. Pl. Cyp. 2 : 272, 1855; Hook. f. in FBI 6 : 577, 1893.

In marshy places. Flowering. Daulatabad. 25384 (22-10-1962).

CYPERACEAE

Bulbostylis barbata (Rottb.) Clarke in FBI 6 : 651, 1893.

In cultivated fields. Flowering. Anupshahr. 31909 (19-8-1964).

Carex foetida Nees in Wt. Contrib. 129, 1834.

Near water. Flowering. Sahanpur (Siyana). 19497 (21-2-1962).

Cyperus compactus Retz. Obs. 5 : 10, 1789.

In flooded fields. Flowering and fruiting. Lakhaoti. 33524 (29-8-1964).

C. difformis Linn. Cent. Pl. 2 : 6, 1756; Clarke in FBI 6 : 599, 1893.

In marshy places. Flowering and fruiting.

Aurangabad and Gangnahr (Bulandshahr). 25345 & 31374 (20-10-1962 & 18-8-1964).

Cyperus flavidus Retz. Obs. 5: 13, 1789; Clarke in FBI 6: 600, 1893.

In marshy places. Flowering and fruiting. Lakhaoti. 25398 (23-8-1962).

C. iria Linn. Sp. Pl. 45, 1753; Clarke in FBI 6: 606, 1893.

Along the canal-sides. Flowering and fruiting. Gangnahr (Bulandshahr). 31364 (18-8-1964).

C. kyllingia Endl. Cat. Hort. Vindob. 1: 94, 1842.

In the orchard undergrowth and near water accumulations. Flowering and fruiting. Pahasu and Kot ka pul. 31915 & 31957 (20-8-1964 & 22-8-1964).

C. niveus Retz. Obs. 5: 12, 1789; Clarke in FBI 6: 601, 1893.

In gangetic ravines. Flowering and fruiting. Anupshahr. 31394 (19-8-1964).

C. paniceus (Rottb.) Boeck. Linnaea 36: 381, 1870.

In the undergrowth of the orchards. Flowering and fruiting. Pahasu. 31918 (20-8-1964).

C. rotundus Linn. Sp. Pl. 45, 1753; Clarke in FBI 6: 614, 1893.

In waste places and canal-sides. Flowering and fruiting. Bulandshahr, Delhi Road (Bulandshahr) and Gangnahr (Bulandshahr). 25521, 31353 & 31372 (18-4-1963, 18-8-1964 & 18-8-1964).

C. triceps (Rottb.) Endl. Cat. Hort. Vindob. 1: 94, 1842.

In the gangetic ravines. Flowering and fruiting. Anupshahr. 31399 (19-8-1964).

Eleocharis palustris R. Br. Prodr. 224, 1810; Clarke in FBI 6: 628, 1893 (Seenk.).

In marshy places. Flowering and fruiting. Bulandshahr and Kot ka pul. 19473 & 31961 (20-2-1962 & 22-8-1964).

Fimbristylis dichotoma (Linn.) Vahl, Enum. 2: 287, 1806; Clarke in FBI 6: 635, 1893.

In marshy lands. Flowering and fruiting. Bulandshahr. 19480 & 31373 (20-2-1962 & 18-8-1964).

Scirpus affinis Roth in Roem. & Schult. Syst. 2: 140, 1817.

In sandy soil. Flowering and fruiting. Anupshahr. 27404 (22-4-1963).

S. articulatus Linn. Sp. Pl. 47, 1753; Clarke in FBI 6: 656, 1893.

Amphibious. Flowering and fruiting. Sahanpur river (Siyana). 19498 (21-2-1962).

S. tuberosus Desf. Fl. Atlant. 1: 50, 1798.

Near water. Flowering and fruiting. Bulandshahr. 19478 & 25321 (20-2-1962 & 19-10-1962).

S. roylei (Nees) Parker in Duthie, Fl. Upp. Gang. Pl. 3: 361, 1929.

In marshy places. Flowering and fruiting. Aurangabad. 25344 (20-10-1962).

S. supinus Linn. Sp. Pl. 73, 1753; Clarke in FBI 6: 655, 1893.

In flooded fields and near ponds and puddles. Flowering and fruiting. Siyana and Lakhaoti. 19499, 25403 & 33523 (21-2-1962, 23-10-1962 & 29-8-1964).

GRAMINEAE

Apluda mutica Linn. Sp. Pl. 82, 1753; Bor, Grass. Ind. 93, 1960.

In waste places and cultivated fields. Flowering and fruiting. Siyana. 25358 (21-10-1962).

Aristida adscensionis Linn. Sp. Pl. 82, 1753; Bor, Grass. Ind. 407, 1960; Hook. f. in FBI 7: 224, 1897.

In cultivated fields in the gangetic ravines. Flowering and fruiting. Narora. 31990 (25-8-1964).

Avena sterilis Linn. var. **culta** Raizada in Ind. For. 80: 36, 1954.

Cultivated. Flowering and fruiting. Lakhaoti. 19614 (23-2-1962).

Cenchrus biflorus Roxb. Fl. Ind. 1: 238, 1820; Bor, Grass. Ind. 287, 1960; Hook. f. in FBI 7: 89, 1897.

In the gangetic ravines. Flowering and fruiting. Narora. 31987 (25-8-1964).

C. ciliaris Linn. Mant. 302, 1771; Bor, Grass. Ind. 287, 1960.

In waste lands. Flowering and fruiting. Lakhaoti. 19422 (18-2-1962).

C. setigerus Vahl, Enum. 2: 395, 1806; Bor, Grass. Ind. 290, 1960.

In cultivated fields. Flowering and fruiting. Bulandshahr. 31335 (18-8-1964).

Chloris virgata Sw. Fl. Ind. Occ. 1: 203, 1797; Bor, Grass. Ind. 468, 1960; Hook. f. in FBI 7: 291, 1897.

In moist places. Flowering and fruiting. Dibai. 31972 (24-8-1964).

Cynodon dactylon (Linn.) Pers. Syn. Pl. 1: 85, 1805; Bor, Grass. Ind. 469, 1960; Hook. f. in FBI 7: 288, 1897.

In waste places. Flowering and fruiting. Lakhaoti and Bulandshahr. 19419 & 19475 (18-2-1962 & 20-2-1962).

Dactyloctenium aegyptium (Linn.) Beauv. Ess. Agrost. Expl. Pl. 15, 1812; Bor, Grass. Ind. 489, 1960.

In cultivated fields. Flowering and fruiting. Bulandshahr. 31444 (18-8-1964).

- Dactyloctenium indicum** Boiss. Diagn. 2, 4: 131, 1859; Bor, Grass. Ind. 489, 1960 (Makra).
In waste places. Flowering and fruiting. Dibai. 31970 (24-8-1964).
- Desmostachya bipinnata** (Linn.) Stapf in Dyer, Fl. Cap. 7: 632, 1900; Bor, Grass. Ind. 491, 1960.
In waste places. Flowering and fruiting. Lakhaoti. 19617 (23-2-1962).
- Digitaria adscendens** (H. B. & K.) Henr. in Blumea 1: 92, 1934; Bor, Grass. Ind. 298, 1960.
In the cultivated fields. Flowering and fruiting. Delhi Road (Bulandshahr). 31342 (18-8-1964).
- D. granularis** (Trin.) Henr. Monog. Gen. Digitaria, 302, 1950; Bor, Grass. Ind. 301, 1960.
In gangetic ravines. Flowering and fruiting. Narora. 31989 (25-8-1964).
- Echinochloa colonum** (Linn.) Link, Hort. Berol 2: 209, 1833; Bor, Grass. Ind. 308, 1960 (Sama).
In cultivated fields and waste places. Flowering and fruiting. Pahasu. 31932 (20-8-1964).
- Elytrophorus spicatus** (Willd.) A. Camus in Lecomte, Fl. Gen. de l' Indo-Chine 7: 547, 1923; Bor, Grass. Ind. 493, 1960.
In marshy clay soils. Flowering and fruiting. Lakhaoti. 25401 (23-10-1962).
- Eragrostis poaeoides** Beauv. Ess. Agrost. 162, 1812; Bor, Grass. Ind. 512, 1960.
In waste places. Flowering and fruiting. Lakhaoti. 19621 (23-2-1962).
- E. tenella** (Linn.) P. Beauv. ex Roem. et Schult., Syst. Veg. 2: 576, 1819; Bor, Grass. Ind. 513, 1960; Hook. f. in FBI 7: 315, 1897.
In cultivated fields. Flowering and fruiting. Delhi Road (Bulandshahr). 31343 (18-8-1964).
- Eriochloa procera** (Retz.) C. E. Hubbard in Kew Bull. 256, 1930; Bor, Grass. Ind. 312, 1960.
Along the pond-sides. Flowering and fruiting. Delhi Road (Bulandshahr). 31347 (18-8-1964).
- Hemarthria compressa** (Linn. f.) R. Br. Prodr. 207, 1810; Bor, Grass. Ind. 161, 1960.
In the undergrowth of the orchards. Flowering and fruiting. Pahasu. 31919 (20-8-1964).
- Imperata cylindrica** (Linn.) P. Beauv. Ess. Agrost. 165, 1812; Bor, Grass. Ind. 169, 1960.
Along the canal-sides. Flowering and fruiting. Lakhaoti and Gangnagar (Bulandshahr). 19616 & 31361 (23-2-1962 & 18-8-1964).
- Lolium temulentum** Linn. Sp. Pl. 83, 1753; Bor, Grass. Ind. 546, 1960; Hook. f. in FBI 7: 364, 1897.
In karela and arvi fields. Flowering and fruiting. Khurja. 25561 (20-4-1963).
- Oplismenus burmannii** (Retz.) P. Beauv. Ess. Agrost. 54, 168, 169, 1812; Bor, Grass. Ind. 317, 1960; Hook. f. in FBI 7: 68, 1897.
In the undergrowth of orchards. Flowering and fruiting. Bulandshahr. 25313 (19-10-1962).
- Paspalum distichum** Linn. Syst. 855, 1759; Bor, Grass. Ind. 338, 1960; Hook. f. in FBI 7: 12, 1897.
Along the water sides. Flowering and fruiting. Kot ka pul. 31958 (22-8-1964).
- Perotis indica** (Linn.) O. Ktze. Rev. Gen. Pl. 2: 787, 1891; Bor, Grass. Ind. 611, 1960.
In waste places. Flowering and fruiting. Siyana. 33517 (28-8-1964).
- Poa annua** Linn. Sp. Pl. 68, 1753; Bor, Grass. Ind. 555, 1960; Hook. f. in FBI 7: 345, 1897.
In waste lands. Flowering and fruiting. Alawa-Rahimpur and Aurangabad. 19431 & 19461 (18-2-1962 & 19-2-1962).
- Polypogon monspeliensis** (Linn.) Desf. Fl. Atlant. 1: 67, 1798; Bor, Grass. Ind. 403, 1960; Hook. f. in FBI 7: 245, 1897.
In cultivated fields and canal-sides. Flowering and fruiting. Aurangabad and Bulandshahr. 19447 & 25503 (19-2-1962 & 18-4-1963).
- Setaria glauca** (Linn.) P. Beauv. Ess. Agrost. 51, 169, 178, 1812; Bor, Grass. Ind. 360, 1960; Hook. f. in FBI 7: 78, 1897.
In cultivated fields and gangetic ravines. Flowering and fruiting. Anupshahr and Pahasu. 31400 & 31913 (19-8-1964 & 20-8-1964).
- S. italica** (Linn.) Beauv. Ess. Agrost. 51, 170, 178, 1812; Bor, Grass. Ind. 362, 1960; Hook. f. in FBI 7: 78, 1897 (Mandwa).
Cultivated. Flowering and fruiting. Pahasu. 31931 (20-8-1964).
- S. verticillata** (Linn.) P. Beauv. Ess. Agrost. 51, 178, 1812; Bor, Grass. Ind. 365, 1960; Hook. f. in FBI 7: 80, 1897.
In waste places. Flowering and fruiting. Siyana. 19494 (20-2-1962).
- Sorghum halepense** (Linn.) Pers. Syn. Pl. 1: 101, 1805; Bor, Grass. Ind. 222, 1960 (Baru).
In sugarcane fields. Flowering and fruiting. Bulandshahr. 25311 (19-10-1962).
- Vetiveria zizanioides** (Linn.) Nash in Small, Fl. South-East U. S. 67, 1903; Bor, Grass. Ind. 258, 1960 (Khas).

In the roadside ditches. Flowering and fruiting. Delhi Road (Bulandshahr). 31350 (18-8-1964).

ASPIDIACEAE

Dryopteris xylodes (O. Ktze.) C. Chr. Not. Syst. 1: 41, 1909.

On the inner moister sides of the canals. Sori. Siyana. 33516 (28-8-1964).

MARSILEACEAE

Marsilea minuta Linn. Mant. Pl. 2: 308, 1771; Gupta, Mono. Marsilea 23, 1962.

In moist places. Sporocarps. Daulatabad and Aurangabad. 19610, 25341 & 25346 (22-2-1962 & 10-10-1962).

M. condensata Baker in Hand. Fern. Allies, 1887; Gupta, Mono. Marsilea 28, 1962.

In moist roadside ditches. Sporocarps. Lakhaoti. 19421 (18-2-1962).

SALVINIACEAE

Azolla pinnata R. Br. Prodr. Fl. N. Holl. 167, 1810; Holttum, Ferns Malaya 622, 1954.

In ponds and puddles, often forming a felt on the water surfaces. Alawa-Rahimpur. 19433 (18-2-1962).

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